NATURAL LAWS IN PIANO TECHNIC

MARY WOOD CHASE

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BY

MARY WOOD CHASE

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To

MY DEAR FRIEND AND TEACHER

Sarah Eliot Newman

TO WHOSE INSTRUCTION AND INSPIRING COUNSEL
AND GUIDANCE IN THE EARLIER STAGES OF
MY PROFESSIONAL STUDY MUST BE LARGELY ATTRIBUTED
ANY MEASURE OF SUCCESS WHICH I HAVE SINCE
ATTAINED, THIS LITTLE BOOK IS
AFFECTIONATELY DEDICATED

19322

There is no royal road to learning, but the highways are better paved than ever before

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INTRODUCTION.

It has been argued that it not only is unnecessary but inadvisable to make a study of the anatomy of the hand, of the muscles used in piano playing, and their various actions; that the mind should be upon the effect to be produced, upon tone production and interpretation and not upon mechanical actions.

It is, however, the experience of the author that every pupil can be most easily reached by knowing the *reasons* for everything. By teaching cause and effect, the pupil learns to deduce his own rules or laws. He works more intelligently and therefore more directly, with least possible loss of time. Also when an appeal is made to the reason, he is more interested to obtain accurate results by realizing the necessity of observing unchanging governing laws. When the impression is thus deeply made, it is most easily retained by the memory. In the first stages of technical development, when position, condition, and actions are being established, there is no opportunity for interpretation. A student cannot learn to paint until he learns how to mix his colors. One thing must be studied at a time. The first step in the beginning of technical study must be to obtain conscious control and development of the hand. If correct and intelligent methods are used from the first, there will be no mechanical or muscular distraction when the subject of interpretation is reached. The hands and arms will be under such conscious control that any desired effect will be quickly and accurately

produced without conscious effort. In this way, effects are obtained through intelligent conception of the effect desired.

In the proper study of muscular conditions and actions, constant appeal is made to the ear, *the end and aim of every exercise being the quality of tone to be produced.* For this reason, if for no other, the piano should be used for the immediate application of each exercise as soon as it is correctly understood and accurately done. *The desire to obtain certain tonal results is the only reason whatever for a study of action, condition and development of the muscles.* This principle must be kept constantly before the pupil, who, when his reasoning and discriminating powers are once awakened, makes constant and enthusiastic progress.

If there seems to be much repetition of principles, it is because many students find it difficult to keep the whole subject previously studied clearly in mind while adding a new principle, and they are consequently liable to obtain a distorted conception of the vital principles.

In order to aid young teachers and earnest students to a clear conception of the technical materials of pianoforte study no effort has been spared to make the subject-matter unmistakably clear at all times.

It is, at the best, a most difficult and unsatisfactory matter to endeavor to guide the inexperienced student and young teacher, no matter how earnest, by means of written explanations. If the old adage that "actions speak louder than words" is not entirely true, yet illustrated actions, personal supervision, and criticism of the results obtained from following the written or spoken word are not only highly desirable but also invaluable. Therefore, the first object in writing the following treatise on Technic was not so much for those who have never thought or worked along these lines, but rather principally to give my own pupils, in a permanent form, a definite guide which should recall clearly to them the beginnings of their study, that they might the more surely take their own first steps in the development of those whom they in turn were to teach. It was

hoped to make this so clear, simple, and logical, that they might be able to safely and advantageously follow its instructions, and also that it might stimulate in them the power of logical thinking, thus enabling them to continue in independent research rather than slavish imitation. In my own efforts in this direction I am largely indebted to my beloved and highly revered teacher, the late Oscar Raif, through whose keen perception, logical and scientific reasoning, and high and beautiful ideals, the understanding of scientific teaching and the realization of truth in art became indelibly impressed upon my own consciousness.

I am also indebted to the kind interest and helpful criticism of Dr. Frederic P. Lord, instructor in the College of Medicine and Surgery and Lecturer on Anatomy, at the State University of Iowa. The illustrations are from photographs made especially for the book by Miss Florence Hendershot of Chicago.

NATURAL LAWS IN PIANO TECHNIC.

I. THE MUSCLES.

The muscles form such an important part of the subject of piano technic, that careful study of the anatomy of the hand and arm is necessary in order to obtain a clear comprehension of the following treatise.

The members of the body are nearly all called into action in piano playing, and in order to obtain the highest results the muscles of the entire body must be well developed. This is best done, not by means of any apparatus, but by simple physical culture exercises. Among the most important muscles are those of the shoulder and back, which have to hold the body erect through hours of practice, and of the chest and lungs, which have to supply the body with oxygen to enable it to do its work. Deep breathing and swimming exercises are of the greatest value. This book, however, is not a treatise on physical culture, but deals especially with those members and muscles which are used directly and under complicated conditions in piano playing. These members consist of the upper arm, the forearm, the hand, and the fingers. They are a framework of bones connected to each other by ligaments and moving at the connecting points in socket grooves called joints.

The arm is hung at the shoulder in a ball-and-socket joint, which allows it to move round in all directions. The elbow joint is single, while the wrist, and in many hands the knuckles, have double joints.

These members are moved at these joints by muscles which are located always in the member above the one to be moved and attached by tendons to the latter. When a muscle contracts it becomes thicker and shorter, and therefore draws the member to which it is attached towards the one where it is located. Thus the large muscle in the upper arm, commonly called the biceps on account of its two-pronged shape, is attached to the forearm at its upper end by tendons, and in contracting draws the forearm up towards the upper arm. This is called flexion. On the back of the arm is another large muscle, called the triceps from its three-pronged shape. This muscle is also attached to the forearm on the opposite side or just below the elbow. By contraction of this muscle the forearm is drawn out to a straight line with the upper arm, or extended. The biceps is therefore called a flexor muscle, the triceps an extensor, and they act in opposition to each other.

In the forearm (back) are located the extensors, which lift the hand back from the wrist, and the flexors underneath, which draw the hand in from the wrist, and also those which draw the hand in and out from the wrist laterally. By a contraction of these muscles in rotation the hand is made to move in a circle from the wrist, or rotate.

Two other muscles are attached at one end to the ulna, a stationary bone in the forearm, and at the other to the radius, which moves around the ulna, its companion, and their contraction moves the forearm and hand in a rotating or rocking motion.

In the forearm also are located the muscles which move the fingers at each joint. To these muscles, which are located in the upper part of the forearm, are attached slender tendons, which pass under and over the wrist bones, where they are held in place by a ligament like a wristband, and through the palm and back of the hand into the tips of the fingers. Those which draw the fingers toward the palm are flexors; those which straighten the fingers, or lift them above the hand, are called extensors. By contraction of the flexor located in the forearm the finger may be made to start at the tip,

moving to the palm of the hand, closing the hand by bending at each joint, and by continuing the contraction of the same muscle the hand made to bend in at the wrist.

A set of muscles are located in the hand and attached to the fingers, one of which sets separates the fingers from each other, and are called the abductors; and the other set draws them together and are called the adductors. The flexor and extensor thumb muscles, which draw the thumb under the hand and out respectively, and the abductors and adductors, which lift the thumb to a level with the hand and draw it down away from the hand, are also located in the hand.

In the shoulder is a muscle which lifts the shoulder and with it the arm. This is often unnecessarily contracted. It has no duty to perform in piano playing, and its contraction causes unnecessary fatigue.

The muscle in the shoulder, however, which draws the arm out from the body, and the muscles across the chest and back, which draw the arm across the body and back into position and down to the side, are all used constantly in piano playing.

From the foregoing it will be seen that the opposing muscles may be divided into sets:

1. Flexors and extensors;
2. Abductors and adductors;
3. Rotatory muscles;

or for their use in piano playing may be classified as follows:

a. **Lifting muscles,** which raise the members into playing position. These are all extensors, except the biceps and the muscle which draws the thumb under the hand, which are flexors.

b. **Playing or tone-producing muscles.** These are all flexors except the triceps, which is an extensor, and the thumb extensor, which is the tone-producing muscle when the thumb lies under the hand.

c. **Muscles of expansion,** which separate the fingers, called abductors, and the adductors, which draw them together, which are used in everything but five-finger position; and **rotatory muscles,** which rock the hand with the forearm from the elbow.

All anatomical terms have been purposely avoided, as it seems unnecessary to use them, but should any one desire to make a more complete study of the subject, reference may be made to Gray's Anatomy.

II. HAND POSITION.

In all art, the natural is superior to the artificial.

Muscular Study. — The mechanism of piano playing has been analyzed, and numberless exercises have been invented for obtaining facility. The results, sometimes beneficial, are often, on the other hand, inartistic; but the root of the matter has not been reached.

Muscular study has not been thoroughly treated. Intelligent understanding of the muscles which control all movements gives not only conscious control but also freedom of motion.

Experimental Exercises. — A few experimental exercises will serve to demonstrate the superiority of one hand position over another.

a. Raise the forearm from the elbow and drop the hand in a relaxed condition from the wrist. (Fig. 1.) Shut the hand suddenly with an intense grip. Notice how easily and naturally the hand rises from the wrist. (Fig. 2.)

b. Drop the hand again as at *a*, and shut it again quickly, but without allowing it to rise from its hanging position. (Fig. 3.) A feeling of tension and strain is felt on the back of the wrist, and the grip loses much of its intensity.

c. Once more raise the forearm and hand, but with the hand on a *level* with the forearm, repeat the grip without allowing the hand to rise from the wrist. (Fig. 4.) This is easier than *b*, but more difficult than *a*.

d. Rest the elbow on the table. Throw the hand back from the wrist but with fingers partially extended. (Fig. 5.) Flex each finger separately, endeavoring to obtain the same vigorous muscular action as when shutting the whole hand. (Fig. 6.)

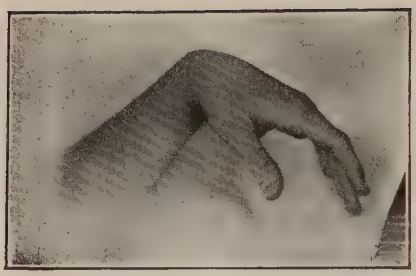


FIG. 1.

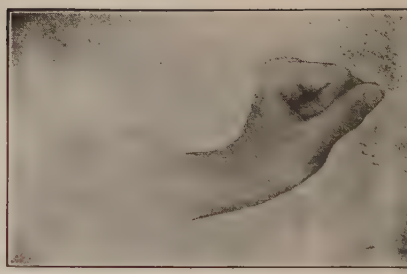


FIG. 2.

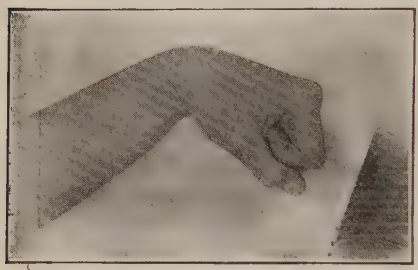


FIG. 3.

FIG. 4.

FIG. 5.

FIG. 6.

FIG. 7.

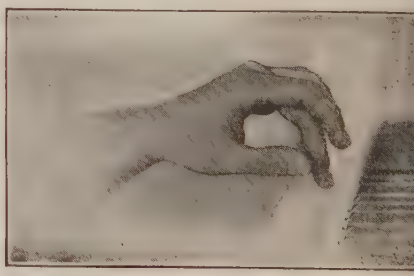


FIG. 8.

e. Take the position illustrated in Fig. 1 and repeat the flexion of each separate finger. (Fig. 7.)

f. Take the position illustrated in Fig. 4, but with the fingers extended, and again flex each finger separately. (Fig. 8.)

g. Lay the forearm on the table and repeat as at *d.*

If properly done, these exercises will prove how greatly superior is the natural strength of the hand when raised from the wrist, or when at the keyboard, with a lowered wrist. The individual power of each finger is much increased.

The gain to hands lacking in flexibility is enormous. The weak and unmanageable fourth finger, which in many cases cannot rise above the level of the hand, has, by its elevated position, an equal chance with the other fingers. It needs only the development of its flexor muscles to make it strong and independent. The thumb, also from its close position, gains in speed and lightness.

Anatomical Reasons. — The flexor muscles, used in the finger stroke, pass through the hand and forearm to the elbow, where they are fastened to the bones near the elbow. In raising the hand from the wrist, these muscles are *stretched to their utmost.* Thus they are enabled to obtain their *greatest possible contraction.* If less or not at all outstretched as at *b* and *c*, the possible contraction is decreased.

Position at Keyboard. — If the hand is raised from the wrist, so as to obtain all possible contraction of the muscles, the forearm, and therefore the wrist, will of necessity be *below* the keyboard. If the forearm is too high, the finger either *does not reach the key*, no matter how intense the contraction, or else barely reaches it, its force having been expended while still in the air.

Power. — Therefore to obtain the most powerful tone, the *wrist must be low enough to barely allow room for the thumb to pass between the hand and the keys.* This extreme position is necessary only where the greatest contraction is desired, not only to develop a full, resonant tone, but also to develop endurance in the muscles.

Finger Position and Action. — The finger tip should point vertically downward with the second joint the highest point and the first phalanx about on a line with the hand. The hinge on which the finger moves is the first joint, the tone being produced by the contraction of the finger flexors or playing muscles, while the extensor or lifting muscles bring the finger back to playing position. In rapid work there is less time to raise the fingers, therefore *the closer must the fingers be to the keys.*

Forearm Support and Weight. — *Support of the forearm* is obtained by sufficient contraction of the biceps to carry the forearm lightly over the keyboard while the forearm muscles remain relaxed. This gives a free, flexible wrist and so-called ligh arm for soft or rapid playing.

Forearm weight is produced by relaxation of all the forearm muscles. The weight of the forearm is thus supported by the finger tip. This should not cause arm motion in playing. While the forearm is steadily supported by the finger which is being used, the next finger drops freely from its joint and receives the weight of the forearm as the other rises. This produces a full, rich, sonorous tone, without the sharpness or harshness which comes from a stroke. It is used in all touches of whatever dynamic quality, when depth and resonance of tone are desired, even though the tone be very soft and the passage rapid. For utmost velocity, however, a light arm is necessary.

Until the proper finger action is obtained, the forearm should rest on the table, the arm muscles being relaxed.

Weeping sinews, the bane of so many piano students, are often caused by an unnatural position of the hands. They rarely occur where the muscles are strong, but rather in weak muscles struggling after strength. Such intense strain is brought to bear upon the extensor muscles, that these strained tendons or weeping sinews result, causing much annoyance and pain. If the hand, however, is held in a normal position, as above described, it will be impossible to cause this condition, as there is no strain in any part. Where,

by faulty practice, or by some sudden twist away from the piano, weeping sinews have appeared, the hand may be gradually strengthened, and the troublesome lump will finally disappear altogether, if the system is at the same time built up and strengthened. In the meantime, the practice, *if rightly done*, may be continued with impunity.

III. HAND CONDITION.

Struggling hours of patient but oftentimes discouraging practice are spent in the effort to acquire surety and fluency, together with breadth of tone without stiffness of muscles. "Relax the wrists," is the constant cry. Yes, but how? For most pupils, it is like a Chinese puzzle to be told to get the weight in the end of the fingers by upper-arm effort or muscular contraction.

By thoroughly understanding the various muscles of the hand and arm, much of the difficulty is overcome. Each member of the body has its opposing sets of muscles (see The Muscles, chap. 1) for flexion, extension, and rotation. The contraction of the flexor muscles moves the member in exactly the opposite direction from the extensor muscles.

Stiffness. — *There can be no stiffness of any member of the body without contraction of the opposing muscles.* Should two boys pull on a rope at the same time in opposite directions with the same degree of force, there would be no motion; that is, stiffness or rigidity would be the result. The strength expenditure would be wasted. If again one suddenly relaxed as the other commenced to pull, the sudden motion resulting would depend in force entirely upon the amount of effort expended. This is also true of the contraction of opposing muscles of any member of the body. If both are equally contracted at the same time stiff or rigid conditions are the result.

The Stroke. — The relaxation of one muscle with contraction of the opposing muscle is the principle of the stroke. In lifting the finger to stroke position, the lifting muscle has no resistance from its opposing muscle and makes no more effort than necessary to lift the finger. In the stroke, the lifting muscle relaxes while the playing or flexor muscle contracts to produce the tone. *Upon the*

amount of the contraction of this playing muscle depends the power of the tone. With relaxation of the lifting muscle without contraction of the playing muscle a pianissimo tone will result from the mere weight of the finger.

Relaxation. — *Herein lies the true principle of the pianissimo;* not an effort *not* to make tone; not a holding back or contraction of the extensors, but merely *complete relaxation.* In the case of a small child's hand, the weight of the finger is less than the weight of the key and is therefore insufficient to produce even the smallest tone with mere relaxation, but necessitates, on the contrary, more or less contraction. In order to obtain the pianissimo or relaxed condition of the hand with small children, therefore, table practice is absolutely necessary. On the other hand, some hands, especially those of boys and men, have fingers so heavy that the relaxed finger produces by its own weight a broad, full tone. In such cases, the pianissimo is obtained, *not by* holding back but by *lessening the distance through which the finger is to fall.*

A fortissimo condition is purely relative. It is due to the greatest possible contraction of the flexors in each individual case. A pianissimo condition is due to absolute relaxation.

To produce the greatest possible contrast in dynamics of which the *pianoforte* is capable requires the most powerful hand and arm with completely developed muscles under absolute control. To obtain the greatest range of dynamics of which each pianist is capable requires the *utmost development of the muscles of that individual hand and arm.*

Velocity. — While to obtain the greatest tone possible necessitates raising the hand from the wrist, or a *low wrist*, the natural position of the hand for pianissimo playing is, on the contrary, its natural relaxed position, that is, hanging from the wrist. Thus it will be found that all passages requiring a large tone and great endurance may most easily be played with a low wrist, while all passages requiring great velocity and lightness will be played with the wrist slightly higher than the keyboard. This position will be governed by the

shorter fingers, which must not be raised so high that they have difficulty in reaching their keys.

Resistance. — Again, when two boys pull on a rope in opposite directions, if one resists, yielding only very gradually while the other pulls with steady contraction, the stronger contraction of the latter *produces*, while the resistance of the former *retards, the motion.* This is the principle of the *Melody* or *Pressure Touch.*

IV. MELODY TOUCH.

In playing a flowing melody, melodic passage, or accompaniment melodic in character, the tone produced must be free from all percussion. The most beautiful tones are those which most nearly resemble in quality the tones of a violin or of a singing voice in their pure singing legato. There is no stroke, but rather a pressure of the keys.

The majority of pianists seem to think of the pianoforte as a *Hammerklavier*, or instrument of percussion, upon which they are able to perform wonderful athletic feats with complicated musical accompaniment. This standpoint is on a level with the acrobats in a vaudeville performance; indeed, ranks not one degree higher, and for purely musical qualities is quite liable to be overreached by some of the modern improvements of the mechanical pianos, which have the extra advantage of economy of labor.

Song. — *Music is song.* Whether produced by the voice, by stringed instruments played with the bow, by wind instruments, or by the pianoforte, the true beauty of music, no matter how modern and how complicated, is none the less *Song.* There may be innumerable voices singing different songs and in different keys and rhythms simultaneously, so that it requires a highly cultivated ear to follow them intelligently; yet the beauty of the music is its *singing quality* and the beauty of the tone production of the various instruments or voices used. Let one instrument produce a harsh rasping quality, and the ensemble is marred. It is this tone quality which should be the first and foremost principle in the study of both the voice and all orchestral instruments. No tone should be produced, no effort to build a reliable technic made, without constant appeal to the ear for the greatest possible beauty of tone quality.

Tone Quality. — Is there any excuse, therefore, for the instrument for which the most beautiful and comprehensive repertoire has been written, to be the one instrument from which tone quality is of secondary or of minor importance? The student who hopes to compete with the various mechanical piano-players must cultivate a beautiful, singing quality of tone, and must rely upon these exquisite qualities of tone production, combined with an intelligent and sympathetic interpretation and reliable technic, rather than upon acrobatic display.

A beautiful tone is the result of correct muscular conditions and can be cultivated by every one, old or young. The naturally beautiful tone may remain more beautiful than the most perfectly acquired tone; though without acquired conscious control the student possessing a natural singing touch might lose some of its original beauty in striving for brilliancy and power.

Muscular Conditions. — The melody touch calls into play both the finger flexor and the triceps or upper-arm extensor muscles, differing also entirely from the stroke, in the introduction of the principle of resistance.

In the *stroke*, the finger extensors are first contracted to lift the finger, then immediately relaxed when the finger is dropped, either with or without forearm weight or contraction of the finger flexor. In the *pressure* touch, the fingers are not allowed to drop. *The hand is pulled down by triceps contraction with a steady resistance of the flexor of the supporting finger, until the key is pressed by the ball of the playing finger.* If, at any point in the descent of the finger, these flexors are suddenly relaxed, the result will be a blow instead of a pressure, even though less heavy because coming from a lesser distance. In the pressure touch, the greater the contraction of the triceps, together with the resistance of the finger flexors, the broader will be the tone. For less tone, less contraction and resistance are needed, but obviously there must be a slight contraction and resistance for even the most pianissimo tone. It should also be noted that if the resistance is too great, the action is so nullified that a

weak, uncertain tone is produced and stiffened conditions are the result. This triceps contraction brings a forearm weight into the end of the finger which could not be obtained by biceps relaxation alone, on account of the resistance. The feeling is similar to the *portamento*, in arm condition and weight.

The Ball of the Finger. — In the pressure touch the finger should be raised so that the third phalanx is on a slightly oblique line with the key instead of pointing vertically downward. The point of contact with the key is the *ball of the finger, and not the tip.* The weight of the arm is of the utmost importance. The result if correctly done will be a singing tone of breadth, depth, and velvety quality.

FIG. 9.

To illustrate: relax the forearm so that the weight rests on the supporting finger. Raise the next finger in playing position for the pressure touch. (Fig. 9.) Imagine a strong elastic band fastened to the tip of this finger and stretched *under* the hand to the wrist. Pull the finger down with strong, *continuous* contraction of the triceps, until the key is pressed. (Fig. 10.) The greater the control and strength or perfect development of these muscles, the fuller, rounder, and more beautiful will the tone become; a tone capable of ranging from the tenderest pianissimo to the most passionate fortissimo, but always beautiful.

FIG. 10.

V. THE THUMB.

Thumb Action. — If the foregoing ideas of muscular control, condition, and action have been properly understood, there will be little difficulty in regard to the thumb. This clumsiest finger of the hand has double work to do; it must not only drop either by stroke or pressure in its natural five-finger position, but must also take its place *under* the hand, in readiness to play after any of the other fingers. Like all of the other fingers, it must be curved and raised high by means of the muscle between the thumb and the hand. This is the muscle used to raise the thumb, as the extensors on the back of the hand are used to raise the fingers. The principle of relaxation, instantaneous or gradual, of this thumb muscle is the same for either stroke or pressure, as with the fingers. To bring the thumb into readiness to play after the other fingers (ascending right or descending left hand) the flexor thumb muscle is contracted so as to bring the thumb underneath the fourth or fifth finger and touching the hand. (Fig. 11.)

Fig. 11.

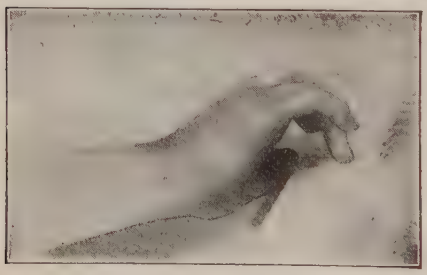


Fig. 12.

Hand Position in the Scale. — It will thus be seen that if the hand is held straight with the keyboard, the thumb cannot reach its key without extreme effort unless the wrist is turned out.

Therefore, to save time and extra motion, *the wrist should be always turned out. This will keep the thumb always over its key.* (Figs. 12 and 13.) For the thumb stroke, when the thumb is under the hand, its *extensor* muscle is used. This it will be noticed is precisely the opposite principle from finger stroke, and also different from the thumb stroke in five-finger position.

FIG. 13.

Thumb Relaxation. — As the thumb is the heaviest finger, and also as its most natural tendency when under the hand is toward stiff conditions, the greatest importance lies in *developing relaxation and lightness of stroke.* For this, the same methods are used as with the fingers; that is, *there is no contraction of the extensor* (in the other fingers, the flexors), but simply the *complete and instantaneous relaxation of the flexor muscle, which has been contracted to raise the thumb up under the fourth finger.* When this muscle is relaxed, the thumb drops with its own *natural weight* upon the key, carrying the key down with it and producing a pianissimo tone. If the hand has been held level, and not tipped towards the fifth finger, the thumb

FIG. 14.

FIG. 15.

will drop *well curved* with the tip of the nail on the edge of the key. (Fig. 14.) The greatest tendency and the one which clings longer than all the other thumb faults, is the contraction of the extensor muscle of the first phalanx of the thumb. (Fig. 15.) This causes a stiff condition from contraction of an opposing muscle. When the thumb is under proper control the motions are as simple and free as those of the most easily governed finger.

Passing of the Hand. — The difficulty of passing the hand over the thumb, in distinction to passing the thumb under the hand (conditions which occur in all passages of scale or arpeggio character), calls into play *the same flexor thumb muscle which draws the thumb under the hand.*

Fig. 16.

In the thumb action, the hand remains stationary, while the thumb moves under. The reverse is true when the hand passes over. In the latter case the thumb remains stationary (Fig. 16), but the hand is drawn into place by the contraction of the same flexor muscle. (Fig. 17.) Care must be taken to keep the thumb curved, as a straight thumb means the contraction of the extensors of the two phalanges; that is, stiffness or resistance to the necessary contraction of the flexor which is being used to draw the thumb under, or the hand over.

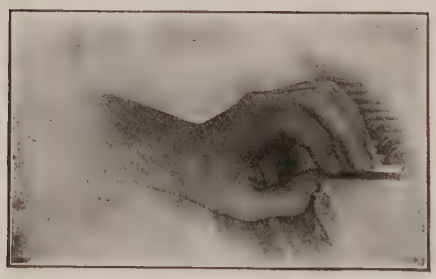


Fig. 17.

If the hand is straight with the keyboard, the fourth finger will have to move the distance of four keys to its next position. Place the left hand over the five keys from F to C with the thumb on C.

The fourth finger being over G, must in ascending pass to D, a distance of four keys, while the finger can scarcely reach D without turning the wrist. If, however, the wrist is kept turned slightly outward, the fourth finger is brought over B by gradual contraction of the thumb muscle while the second and third fingers are being played, making a distance of only two instead of four keys to be traversed. It also has the added advantage of requiring no wrist motion, as well as of easily enabling the thumb to reach its key.

The conclusion is natural that a more fluent and even scale and arpeggio can be played by a slightly outward turned wrist, the forearm moving out and in from the elbow freely without resistance as the hand passes up and down the keyboard.

VI. THE TOUCHES.

The principal touches are *Legato*, *Staccato*, and *Portamento*, with subdivisions of *Legatissimo*, *Non legato*, *Demistaccato*, *Staccatissimo*, *Marcato*, and *Vibrato*.

Legato. — *Legato* means bound together, the tones touching like pearls strung together, neither run into each other or overlapping nor yet detached or separated. *The vibration of one set of strings must continue until the next set commences to vibrate.* So long as a key is held down, the strings which have been set in motion by the hammer belonging to that key will vibrate in unison.

A key, a hammer, *three* strings (in the lower octaves *two*, and in the very lowest octave *one*), and a damper are the mechanical combination for tone production in the modern pianoforte. As the key is pressed down, the damper rises, leaving the strings free to vibrate. The hammer, as well as the damper, is attached to the inner end of the key, so that as the key is pressed the hammer is thrown against the open strings and sets them in vibration. The hammer then immediately flies back, allowing the strings freedom to vibrate. If the rebound of the hammer is not instantaneous, as is the case in some imperfect actions, it interferes with the vibration, cutting it short almost instantly, unless the pressure touch is used. When the tone is to be stopped, the key is released and this drops the damper on the strings. This prevents all further vibration. In this way, *if one key is held down, and the damper up, until the next key is played, or until the next strings are set in vibration, the result is two tones bound together or, in musical terminology, legato.*

The legato touch is therefore the result of the finger action which holds down one key until the next key is played. If the first key

is held down after the next is played, two sets of strings are vibrating simultaneously. On the contrary, if one key rises before the next one is played, the damper of the first stops the vibration of its set of strings before the next begin to vibrate, and the tones are therefore detached.

It is thus clear that *one finger must rise exactly as the next one falls*. If it rises before, the tone will be detached, no matter how slightly; if it holds over the other, the tones will be overlapped.

Variations of Legato. — The two variations of *legato* are *legatissimo*, or clinging to one key after the next is played, literally, very much bound together; and *non legato*, or not bound together, but raising one finger before the next one is played. In *non legato* the finger remains on the key until *just before* the next is played, detaching, but not taking away half or more of the value of the note.

Signs for the Legato Touches. — The signs used for these three tone qualities are the *slur*, ⁀, for *legato;* either notes of overlapping values or the abbreviation *legatiss*, for *legatissimo;* while *non legato* is represented by notes without the slur, or by the word *non legato*. Composers and editors are, however, sometimes negligent in omitting slurs from legato passages, so that the character of the composition and passage must frequently be taken into consideration to determine the degree of legato desired.

Portamento. — *Portamento* is literally a "carrying over," and was a term originally used by the Italians in singing, *portamento da voce*. For the voice and for orchestral instruments, the term is used for sliding over the distance between two tones. If there is any inaccuracy of terminology, it is in using, for sliding through or over tones, a word which means *carrying over* (Latin, *portare*, to carry), and which in its application to piano technic is expressed very exactly not only by the effect produced, but also by the arm movement used to produce that effect.

In piano technic, the term has been applied to tones which cannot be played perfectly *legato* with the fingers and yet which are to sing as though *legato*.

The sign for *portamento*, , indicates that, although detached, yet the tones are not even to be *non legato*, but rather as *legato* as possible.

Use of the Portamento. — The *portamento* is the touch used in all cases where a singing, sustained effect is desired in the following cases:

In all repeated notes, chords or octaves.

In sustained melodies, where the same finger is used for different melody notes while the other fingers play the accompaniment or other voices.

In skips between notes of a melody, or between sustained chords where legato is impossible.

In a repeated tone in two or more chords, while the other tones are connected by a legato finger action.

In legato octaves.

In divided form for the attack and ending of a phrase.

In all these cases, the *portamento* touch should be used whether indicated by its sign or not.

Besides these enumerated cases, which are but substitutes for a true *legato*, the *portamento* is used to produce its own peculiarly beautiful effect wherever indicated by the composer by its own sign . In all these cases the touch is the same.

For obtaining the most beautiful singing tone, the key as usual should be pressed, not struck, and held as long as possible before playing the next key, leaving as little space as possible between the two tones. This slight break between the two tones is prevented from becoming a rest, however infinitesimal, by the use of the pedal. This, by keeping the strings open, allows them to vibrate until the next tones begin to sing. Thus the tones are literally *carried over* from one to the other, or *portamento*.

Arm Action. — To produce this peculiarly *legato* singing effect, the forearm must be called into action, for by raising the finger to obtain the necessary pressure a gap would occur, which would break the *legato* effect.

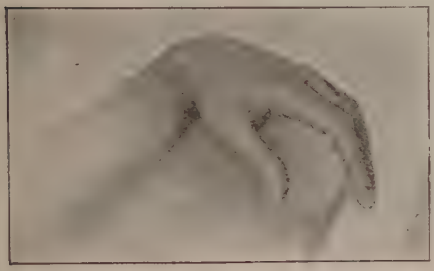


FIG. 18.

While clinging to the key with the finger, the forearm is raised until the wrist is so high that the finger is drawn off the key. With the wrist leading, the forearm is then dropped again until the finger is pulled down on the key with the ball of the finger as the point of contact. The key should be pressed down as far as possible.

For example: raise the forearm with the hand hanging relaxed so that the finger to be used is about an inch above the key. (Fig. 18.)

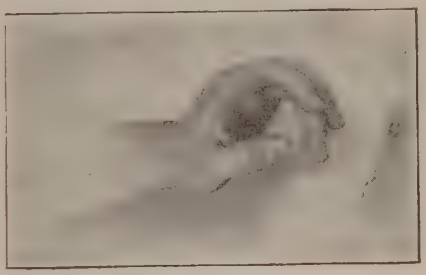


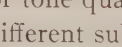
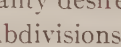
FIG. 19.

Then while the finger rests on an imaginary support (that is, remains stationary) the forearm is dropped until the wrist reaches its lowest point. (Fig. 19.) The tip of the finger is now the highest point, and with no cessation of motion is pulled down by a still further drop of the forearm until the ball presses the key with a slight flexing or pulling down with the tip of the finger. (Fig. 20.) In order to

FIG. 20.

prevent the *hand rising* from the wrist, instead of the *forearm dropping* from the wrist, a pencil may be held about an inch above and parallel with the keys, with the tip of the finger resting upon it, and proceeding as above described. The more tone desired, the higher should the forearm be raised for preparation and the greater should be the contraction of the triceps to produce the tone. The less tone or more rapid the tempo, the less will be the arm motion. With the contraction of the triceps, the biceps is gradually, not instantly relaxed. This is the principle of resistance explained in Chapter IV, p. 13, on Melody Touch. The absolute relaxation of the biceps would give the thud of a dead weight without, or of a sharp blow with, triceps contraction. In accompaniment playing, this arm and relaxed wrist action is very slight, as little pressure or weight is desired.

When the portamento is between skips, the forearm is raised as before, and carried in a continuous curve, not a straight line, dropping the arm and wrist only when over the next key. For chords and octaves, the action is precisely the same, but with combined fingers instead of a single finger.

Staccato. — *Staccato* means detached, and its superlative, *staccatissimo*, very detached. The signs  and  indicate respectively the degree of crispness or tone quality desired.

Subdivisions of Staccato. — Five different subdivisions of staccato may be made: *Finger staccato*, the same finger action used in the stroke, but with instantaneous rebound of the finger into playing position.

Hand staccato, a throwing of the hand from the wrist, and an instant rebound, produced by alternating contraction of the flexor and extensor muscles of the forearm. The finger to be used must be well defined.

Elastic staccato, a flexing of the finger tip by contraction of flexors of the second and third phalanges, so that the key which is struck with the ball of the finger immediately rises, while the finger con-

traction continues until the finger tip reaches the palm of the hand. This produces a brilliant quality of *staccato*.

Pizzicato, the least possible flexing of the finger tip, which produces a very dainty, crisp *staccato*.

Vibrato, a rapid vibration of the hand from the wrist, which combined with one or more of the other *staccato* touches is used for very rapid passages.

Marcato. — *Marcato*, as its name indicates, means each individual tone strongly marked or accented. Any of the different touches may be played *marcato* by adding extra arm weight or triceps contraction.

A Table of the Touches.

STROKE (without resistance).	PRESSURE (with resistance).
LEGATO	LEGATO
Finger passages.	Finger melody and melodic passages.
NON-LEGATO	PORTAMENTO
Finger, Hand, Forearm.	Finger, Hand, and Forearm combined.
STACCATO	MARCATO
Finger, Hand, Elastic, Pizzicato, Vibrato.	Any of the above touches with special accent.

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VII. OCTAVES.

Some years ago, while proving many of his theories by scientific experiment, Oscar Raif gave a certain difficult octave passage to a number of his pupils. With the right hand the passage was practiced for a couple of weeks by the methods usually taught. On the contrary, the left hand, which in every case was the weaker of the two, was practiced according to his own theories, and directly contrary to tradition. The result, at the end of the prescribed time, was, without exception, that the left hand had gained over the right in surety, velocity, and endurance, and continued to gain over the other week by week.

Chief Difficulties. — According to Raif's ideas, the chief difficulty is not the attainment of flexibility in the wrist. That is as natural a motion of the body as raising the arm from the elbow or the shoulder. A day laborer or young child could easily accomplish this with a little practice with rapidity and endurance.

The difficulties in octave playing lie, first, in keeping the octave span; that is, in absolute control over the hand muscles, avoiding either flexion or extension of the thumb or fifth finger, while maintaining a relaxed condition of the other fingers; and second, in the difficulty of passing from one key to the next, no matter what the distance, with accuracy and speed.

On these two principles was based the practice of octaves. The muscles of the thumb and fifth fingers, while keeping the octave span, must be sufficiently contracted to prevent being forced upward by the most powerful contact with the keys. With this power of resistance in these tone-producing fingers, the amount of tone will depend on the contraction of either the forearm flexors or of the triceps.

While power and endurance are gained by playing octaves from

the elbow, according to the principles as taught by Raif, yet power *combined with greatest possible fluency is thereby lost.*

The shorter the member to be moved, the greater is the velocity. Therefore, if the Raif principle of *practice for surety be applied to the practice of octaves from the wrist, together with the practice from the elbow for power*, the quickest and most satisfactory results will be attained.

Surety. — The practice for surety depends on an all-important principle: ***make no unnecessary motion.***

Stay on one key until ready to play the next, then make as little motion to reach the next key as absolutely necessary to produce the desired tone.

If little tone is desired, muscular contraction is either slight or else the principle of relaxation for pianissimo is used. This with the hand or forearm requires very little contraction of the lifting muscles, the extensor of the forearm, or the biceps. If greatest possible tone is desired, even then the lifting muscles should do their work as quickly as possible in counteraction with the flexor of the forearm, or with the triceps. As these muscles are both powerful it is not necessary to lift the hand or forearm to the utmost height in order to stretch the tone-producing muscles for greatest contraction. Even were the flexor of the fifth finger capable of withstanding the blow produced by greatest possible contraction of the triceps, yet with such a powerful blow a musical tone cannot be produced upon the pianoforte in its present state of development, if indeed the strings could endure the strain. Therefore, the principle of opposing muscles, or resistance, must be remembered when raising the arms high to obtain a tremendous climax in either chord or octave passages.

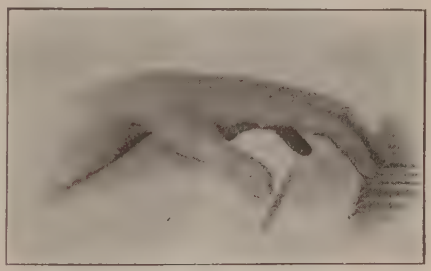


FIG. 21.

FIG. 22.

Octaves from the Elbow. — The forearm is raised from the elbow about an inch by biceps contraction. The forearm extensors contract sufficiently to prevent the hand from falling relaxed from the wrist when the forearm is raised. (Fig. 21.) The flexors are also contracted enough to prevent the hand from being forced upwards by its contact with the keyboard. As the arch is the form of the greatest resistance, the contraction of this forearm flexor for octave playing, therefore, should be sufficient to cause the hand and forearm to form a slight arch at the wrist. Care must be taken that the knuckles are *not* forced downwards so that the intervening keys are struck even slightly. (Fig. 22.)

This will not be difficult with hands having sufficient span, but for a very small span it is necessary not only to play with a level wrist but also on the extreme edge of the keys.

It will seem from the preceding paragraph that both forearm flexors and extensors are simultaneously contracted in this practice of octaves from the elbow and that a certain degree of stiffness will result. This is not true, as these opposing muscles act only alternately. The flexor is not needed when the forearm is raised, and the extensor is similarly relaxed when the forearm is dropped. This may be easily understood by lifting the forearm from the elbow to a horizontal position and holding the hand level by contraction of the extensor muscle in the forearm. There is no contraction of the opposing flexor muscle, or effort to hold or draw the hand down. Again drop the hand in octave position heavily upon the table. The extensor is no longer needed to hold the hand level and at once, therefore, relaxes, while the flexor as instantly contracts to prevent the hand from being forced upwards; if correctly done there will be no stiffness. It is a part of that same ele-

ment of tone-producing resistance which is obtained by continuous contraction of the flexors of the thumb and fifth finger in this same octave practice. These muscles are all kept in the same contracted condition when the forearm is raised from the elbow, causing firmness and surety of span, and are relaxed only at the end of the passage or phrase. By these muscular conditions and by spending the least possible time in the air, minimizing distance and thus time expenditure, power, breadth of tone, endurance, and surety are obtained, not possible otherwise *from the same amount of practice*. Where there has been failure to attain fluency and lightness, the cause lies, not in the unrelaxed wrist, but in the lack of valuable relaxation exercises, and also of the *additional practice of octaves from the wrist.*

Octaves from the Wrist. — Old methods of practice, whether for finger or hand development, made much importance of the lifting muscles. Modern methods recognize the law of gravity as the basic principle, and the lifting muscles assume their proper function as a means to the end, that of bringing the member to be used into playing position. As no unusual power or endurance is needed for this comparatively easy, though most important motion, the only point to be impressed on the mind in regard to any of these lifting muscles is that of raising the finger, hand, or forearm as far only as is necessary to obtain its greatest opposite contraction by the tone-producing muscles. This rule applies to octave practice from the wrist. The hand is raised by the forearm extensor just enough to obtain a powerful contraction of the forearm flexor.

At this point it is necessary to observe the all-important principle of practice for surety, *that of remaining on one key until ready to play the next.*

The old method was that of instantaneous rebound in preparation for the next stroke. This caused a lack of surety, a mental condition. By remaining on the key, the mind instantly concentrates on the next key to be played, so that on leaving the first the next key is played with no loss of time, the up and down motion being

continuous and not interrupted as before. In this way, no matter how great the velocity, there is no difference in the amount of time the hand spends in the air or in passing from one key to another but only in the amount of time given to each key. The gain in mental velocity and surety is great, and the muscular development just as rapid.

While the important principle of surety underlying the practice of octaves, as taught by Raif, has been applied to this playing of octaves from the wrist, yet *there is great gain in velocity combined with power from using the shorter member, the hand from the wrist, instead of the longer one from the elbow. The power comes from the contraction of the forearm flexor; the velocity from using a shorter member.*

Vibrato or Velocity Octaves. — In each of the preceding methods of practice the object has been to obtain power, whether with or without velocity. As, however, greatest possible velocity has for its basic principle, *relaxation*, or tone produced by the mere weight of the playing member dropped from its playing position, or again, in other words, the *pianissimo condition*, therefore the practice for ultimate velocity should be the least possible lifting motion which will produce a tone by relaxation.

The *vibrato touch* is produced with the hand from the wrist, by forearm relaxation, and is the *counteraction of all non-legato practice from the elbow*, whether in octaves, chords, or single tone practice. *It is used for all light velocity playing, where tones are detached, and is a form of staccato.*

Raise the forearm slightly from the elbow. Relax the forearm and hand, the hand dropping of its own weight, and the fingers hanging relaxed. Shake the hand vigorously from the wrist, with an impulse from the upper arm, using the forearm simply as the handle of a flail. This gives perfect freedom of motion. Again with upper arm effort, vibrate the hand freely and rapidly from the wrist in a series of short, quick, or trembling motions. The result should give to the eye much the same impression as a waved line ~~~~. When this is easily accomplished, hold the forearm

over the table with the fingers of the relaxed hand just touching the table. Fling the hand from the wrist, so that on reaching the table the hand rebounds very lightly. To do this the hand and forearm must be free from all tension so that the hand may rebound with the elasticity of a rubber ball. These rebounds may be indefinitely increased, until the effect is as above described, as a trembling or vibrating movement. *The effort or fling for the attack comes always from the upper arm.*

For the vibrato practice, it is entirely unnecessary to throw the hand up and down from the wrist by using full contraction of flexor and extensor forearm muscles. Instead, it should be practiced first with light rebounds, and finally with accent on the last note of each group. This accent is produced by a contraction of the forearm flexor, as will be plainly felt. The practice of velocity octave passages, therefore, will be best from the elbow for surety and followed immediately with the vibrato.

When the vibratory hand is perfectly understood, there will not be the slightest danger of stiffened conditions resulting from octaves practiced from the elbow, either to the smallest child or to the most advanced student.

Legato Octaves. — To produce the most singing legato between both tones of one octave and the next octave, the portamento touch must be used. By means of a legato fourth and fifth finger and a portamento thumb, together with the correct use of the damper pedal, the effect of perfectly legato octaves is obtained. It is unnecessary to change fingers on the same key by substituting the fourth for the fifth finger. By means of the portamento wrist action, it is possible to cross the fourth finger over the fifth, or pass the fifth finger under the fourth in the opposite direction, as the wrist is being raised, while the legato is unbroken. At the same time, the thumb remains on the key until the wrist reaches its highest point, when the change to the next key is made precisely as in the portamento.

This use of the portamento obtains a beautiful singing quality of tone as well as a more legato effect. The legato between the

fourth and fifth fingers is not needed, however, except in a rapid legato passage, where an absolutely legato pedal would be difficult if not impossible. In slow passages the portamento may be used with the fifth finger as well as the thumb, the pedal completing the legato quality.

Broken Octaves. — For surety, both mental and muscular, broken octaves should first be practiced *unbroken;* next for endurance, with a partial rotary movement from the elbow, the down action as in other cases being of primary importance. There is no raising and dropping of the wrist, as is sometimes taught, but a rocking of the arm from side to side.

Raise the hand and forearm from the elbow in a straight line until it reaches a horizontal position, with the hand extended in octave span. Rock the forearm and hand as one unjointed member slowly from side to side in a cradle-like motion. This is produced by the alternate contraction and relaxation of the rotatory muscles which pass through the forearm and upper arm, as may be plainly felt. When this can be easily done, slowly increase the speed until the effect is that of the same vibratory motion as in playing velocity octaves, only rotary instead of vertical. The elbow must not be constrained, but rather allowed perfect freedom. The hand and arm motion is, as in all extreme velocity work, the least possible for pianissimo tone production.

Chromatic Octaves. — To avoid loss of time in extra motion by moving the hand in and out in playing octaves on black and white keys, whether chromatic or other combinations, the white-keyed octaves are played as near the edge of the black keys as possible, and the black-keyed octaves are played on their extreme edge. This keeps the octaves in a straight line, avoiding all unnecessary expenditure of motion; that is, it economizes both time and effort.

VIII. CHORDS.

To play a broad, massive chord, resonant and singing, seems to be the most unusual of all technical attainments. With an otherwise well-developed technic, chord playing is too often hard and metallic, or flabby and uncertain.

Chord playing, nevertheless, is not so difficult an attainment as might be supposed. The muscular action is complicated, but involves no new principle.

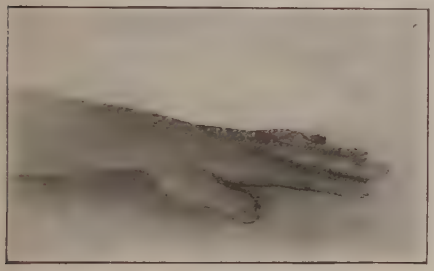


Fig. 23.

Muscular Action. — The flexors of finger and hand, and both flexor and extensor of the upper arm, are all brought into play. It is well, therefore, at first to proceed by degrees, analyzing each special movement, and afterward combining them.

a. Lay the hand outstretched upon the table, with all muscles relaxed. (Fig. 23.) Slowly flex the fingers at the third, second, and first joints. (Fig. 24.) The finger tips should not slide on the table, but should remain on the same spot. This pulls the arm slightly forward with the contraction of the finger flexors. Again relax the flexors, allowing the arm to move back to the first position.

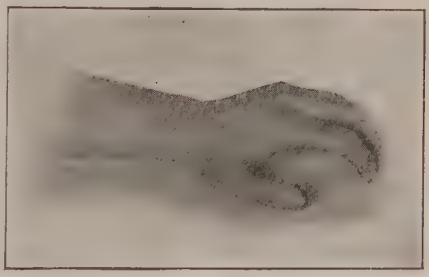


Fig. 24.

b. Raise the wrist high, with fingers outstretched as before. (Fig. 25.) This will leave only the tips of the longer

fingers on the table. As the fingers are flexed, pull down the forearm by a contraction of the triceps, the finger tips remaining on the same spot as before, and again pulling the arm slightly forward. Care must be taken that the arm is not *pushed forward*, the forward action being produced entirely by the finger tips. (Fig. 24.)

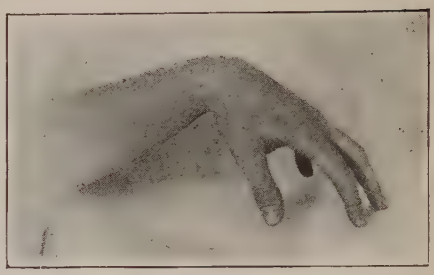


Fig. 25.

c. Raise the forearm as for portamento, with the finger tips hanging about an inch above the table (Fig. 26), and drop as before, with contraction of finger flexors and triceps. (Fig. 27.) This contraction of the triceps gives weight and therefore breadth to the chord, while the flexion of the fingers gives a round, full tone, without the hardness that would result from dropping on the end of the fingers. The fingers not to be used in the chord should be raised slightly, so as not to strike the adjoining keys, while the hand should be kept as arched as possible for the same reason. (Figures 28 and 29.)

Fig. 26.

At the Keyboard. — At the piano this same order of preparation should be observed.

a. Lay the fingers flat on the keys, the tips being well in between the black keys. Press the keys down with the finger tips by contraction of the finger flexors, the hand remaining quiet.

Fig. 27.

b. Raise the wrist high. As the wrist is dropped the fingers again grasp the keys, this time with added breadth of tone gained by the triceps contraction.

c. Drop the forearm from above the keyboard. This gives still greater power by the increased contraction of the triceps, but always combined with the flexion of the finger tips in grasping the keys.

The ball of the finger must always be the point of contact with the key as in the portamento. On dropping the forearm, there must be elasticity, not rigidity. This will cause a slight, almost unnoticeable rebound of the forearm, which gives perfect freedom from all tension in the wrist. This slight motion is noticed at the wrist point, but care should always be taken to avoid all unnecessary motion which will render an otherwise good technic unsightly and full of mannerisms.

In commencing chord work at the keyboard, use a position at first requiring little span, and gradually increase until the octave or ninth is easily played.

For all detached but sustained chords, and for all melodic chords, where finger legato is impossible, this portamento touch is used, the pedal completing the legato effect.

Legato Chords. — In legato chords only repeated fingers or repeated tones are played portamento. All tones which are not repeated and which can be played by different fingers should be played legato wherever possible.

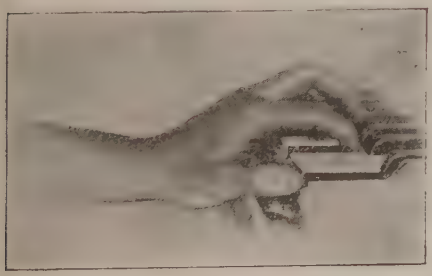


FIG. 28. Correct Position.

Staccato Chords. — In staccato chords the same subdivisions may be found as have been enumerated in the subdivisions of staccato, with the exception of the finger staccato. The hand staccato is a throwing of the hand from the wrist with instantaneous rebound. This is used for

light, rapid chord playing as a form of vibrato, as in the ascending chord passage of the *Finale* of the Beethoven Sonata, Op. 2, No. 3. For a brilliant quality in staccato chords, the elastic staccato finger action is used with the portamento arm action, but with the instantaneous rebound of the arm by the raising of the arm from the wrist.

FIG. 29. Incorrect Position.

Pizzicato Chords are played in the same manner, but with pizzicato finger flexion.

The quick, elastic rebound, produced by the sudden flexing of the biceps and forearm flexors, produces a crisp effect.

Chord Skips.—The portamento touch is used for skips wherever the effect is to be legato. In practicing for surety, the rule must be observed of remaining on one key until mentally sure of the next chord, its position, fingering, and distance; and then immediately on leaving the key, the fingers must define the next chord by taking the position they are next to play, while the arm moves rapidly to the next keys and drops upon them with the portamento touch.

Combinations of Tones.—If it is remembered that all octaves, double thirds, double sixths, and also chords are merely combinations of single tones, played with two or more fingers simultaneously, and that the laws governing the tone production of single tones must be applied here in the same manner, much confusion and uncertainty of thought will be avoided. The only difficulty lies in the fact that in single tones only one touch is observed at a time, while in combinations of tones the different fingers of the hand have to produce *different touches* often, as when playing different touches with the two hands together. Even with a single

tone in each hand, it is often necessary to play one hand legato and the other staccato or portamento. No more concentration and mental effort is needed to obtain independence of fingers in one hand than to gain independence between the two hands.

IX. EQUALIZATION OF THE FINGERS.

Two and Three Finger Exercises. — Two and three finger exercises are best used for development of equality in the fingers, and at first, after practicing hands separately, not only the *same sets of fingers, but also the same fingers in each hand should be used at the same time.* This will bring the hands in *contrary motion,* the second fingers playing together and the thumbs also; the other fingers are played together in the same manner according to the following table:

(*a*) 2 1 2 1: ‖ (*b*) 1 2 1 2: ‖ (*c*) 3 2 1 2: ‖ (*d*) 1 2 3 2: ‖ (*e*) 2 3 2 1: ‖ (*f*) 2 1 2 3: ‖
3 2 3 2: ‖ 2 3 2 3: ‖ 4 3 2 3: ‖ 2 3 4 3: ‖ 3 4 3 2: ‖ 3 2 3 4: ‖
4 3 4 3: ‖ 3 4 3 4: ‖ 5 4 3 4: ‖ 3 4 5 4: ‖ 4 5 4 3: ‖ 4 3 4 5: ‖
5 4 5 4: ‖ 4 5 4 5: ‖

By practicing the same fingers at the same time when the hands are put together, the thought is concentrated on the same difficulties for each hand. Practice not only on the white keys but also on the black, and again, black and white key combinations, as well as the first five notes of each scale.

The Trill. — The preceding exercise is preparatory to the trill. It does not in itself develop an even, continuous trill with hands together. The long-continued habit of playing the same fingers at the same time causes one of the hands in a long trill to lose its accent. The trill will become inverted in one hand; or in other words, the hands will eventually play in contrary motion, according to their fixed habit.

It is therefore best, as soon as the fingers are in some measure independent, to practice the *parallel trill,* and in order that the trill form may be complete the turn is used to finish each trill.

This forms a *chain trill* practiced on each tone of the scale to avoid monotony.

To develop equality, velocity, and rhythm at the same time, the trill should be practiced in quarter, eighth, and sixteenth notes. It may also be practiced in triplets and sextolets.

In ascending, practice as an inverted trill, and in descending commence the trill on the principal note.

Trill practice with each separate set of fingers each day develops, thus, perfect equalization of the fingers and an even trill at the same time.

Practiced with as strong contraction of the flexors or tone-producing muscles as is possible for each individual hand without forcing, that is, with as firm a touch as possible, it will be found that three or four chain trills with the same set of fingers will test the endurance. Fortissimo practice, as required by many teachers, causes stiffened conditions and often lameness or strained muscles, inasmuch as pupils endeavor to obtain as *loud a tone as possible, rather than as strong contraction of the correct muscles as possible while keeping all other conditions correct.* On the other hand, many teachers are afraid to require fortissimo or heavy practice, fearing these same faulty conditions, and the pupil's playing is therefore weak and without character.

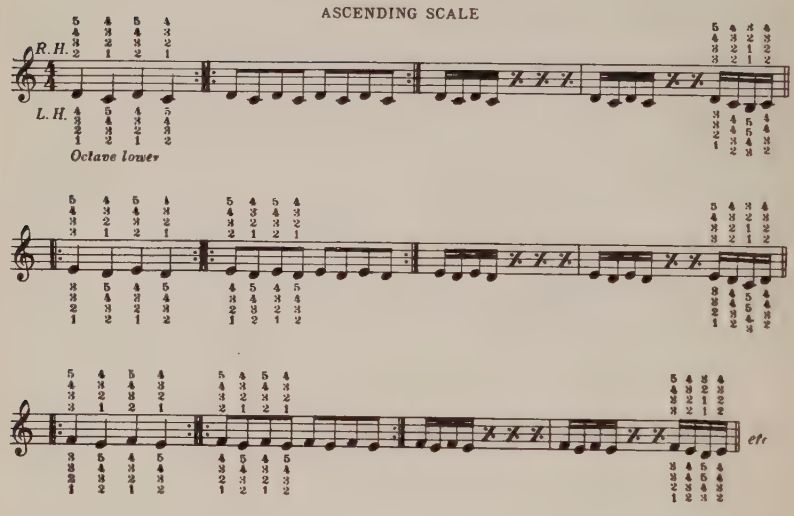
If at first, to avoid stiff conditions, the finger action is light, even to the point of relaxation, the number of chain trills will have to be increased to obtain any measure of endurance. *When, however, the hand condition is correct, the practice should be, in every respect, such as will economize both time and effort by requiring the utmost of each playing muscle in every action.*

To make trill practice less nerve-wearing, it may be practiced in sixths or tenths instead of octaves. As one set of fingers is fatigued the next set is substituted. In trilling with the first and second fingers of the right hand, the third finger substitutes for the second in playing the turn, but the return to the original set is

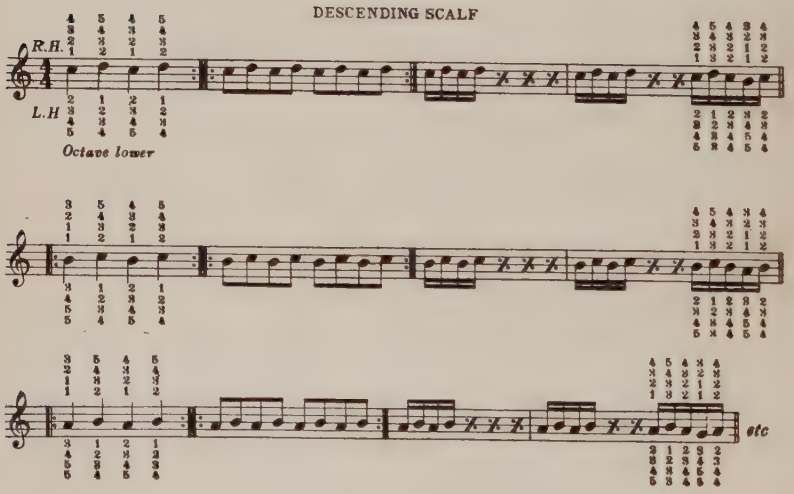
Exercise I, Daily Technic.

RHYTHMICAL TRILL

ASCENDING SCALE



DESCENDING SCALE



made in the next trill. This exercise may be practiced in the scale which is being studied, instead of always in the scale of C.

Development of the Weaker Fingers. — By commencing and ending the trill practice with the fourth and fifth fingers, the weakest fingers have slightly more development without danger of overfatigue. As the muscles grow stronger, these fourth and fifth fingers may alternate with each other set, developing them with great rapidity.

For example:

4 5 4 5 : ‖ 3 4 3 4 : ‖ 4 5 4 5 : ‖ 2 3 2 3 : ‖ 4 5 4 5 : ‖ 1 2 1 2 : ‖ 4 5 4 5 : ‖
5 4 5 4 : ‖ 4 3 4 3 : ‖ 5 4 5 4 : ‖ 3 2 3 2 : ‖ 5 4 5 4 : ‖ 2 1 2 1 : ‖ 5 4 5 4 : ‖

Another valuable exercise is with the third, fourth, and fifth fingers in various accents, on black and white keys.

C C♯ D C♯ : ‖ C C♯ D♯ C♯ : ‖ C D D♯ D : ‖
C♯ D D♯ D : ‖ C♯ D E D : ‖ C♯D♯E D♯ : ‖
D D♯ E D♯ : ‖ D D♯ E♯ D♯ : ‖ D E F E : ‖
D♯ E F E : ‖ D♯ E F♯ E : ‖ D♯E♯F♯E ‖ etc.

Caution must be exercised not to overtax the muscles in this extreme form of concentration on the greatest difficulties. Here, as in all things, "haste is waste." Too much zeal would disable one completely.

A useful fingering for a long-sustained trill is 1 3 2 3, as it gives facility in delicate accentuation.

For obtaining freedom in changing from one rhythmical group of notes to another in rapid succession, practice the trill in measures containing respectively, to each count, one, two, three, four, six, and eight notes each.

X. SCALES.

The hand is now ready to commence the difficult combinations of scale and arpeggio forms. Each composer has his own peculiar treatment of these two forms of technic, and teachers have sought to prepare their pupils by countless exercises based on endless varieties of treatment.

Two Types of Difficulty. — We are at once relieved from our Slough of Despond by finding that there are only two types of greatest difficulty, both in scale and arpeggio playing, that of passing the thumb under the hand, and of passing the hand over the thumb.

There are three varieties of these difficulties in scale playing:

Passing the thumb under or the hand over —

1. From a black key to a white key, a half step.
2. From a black key to a white key, a whole step.
3. From a white key to a white key.

The second is more difficult than the first, the distance being slightly greater, but the third is more difficult still, as the hand lies closer to the keyboard, and the thumb has less freedom.

The scale of E in the right hand, and E flat in the left hand, is the type of the first difficulty. The scale of E flat in the right hand, and E in the left hand, is the type of the second difficulty.

The Scale of C. — *The scale of C in each hand is the type of greatest difficulty.*

As it is more difficult to use the thumb after the fourth finger than after the third, the practice of the scale of C, not with the regular fingering, but with the first four fingers used each time in succession, will give the concentrated form of greatest difficulty in scale practice.

Naturally this must be used only for technical and not for formal practice, as pupils not perfectly familiar with the correct scale fingerings will become confused by the two. Until the correct fingering is well established with young pupils, it is well to use

this only as a five-key exercise; in the right hand, from F to C and return, using the thumb on both extremities; in the left hand, from G down to C. A white-keyed exercise may be used commencing on D in both hands in contrary motion, which will not be quite so confusing to the pupil as in using the scale of C with this unusual fingering. This most difficult form will develop the scale technic much more rapidly, as it concentrates the effort on the greatest difficulty, that of playing the thumb after the fourth finger on a white key. As the thumb, in its extremely contracted position under the hand, is apt to stiffen if played with a stroke, it is practiced relaxed or pianissimo, for lightness, while the other fingers are practiced with as much stroke as possible to develop strength, endurance, and equality as rapidly as possible. The thumb, being naturally the most powerful finger, needs less practice for endurance than the other fingers. In passing the hand from one keyboard position to another, the utmost rapidity, combined with absolute lightness of hand and arm, is necessary to develop speed.

For example, with the thumb in playing position under the fourth finger, play B with the fourth finger, and *hold it while dropping the thumb relaxed or pianissimo on C.* The second finger is raised in the meantime to stroke position. Release the fourth finger as the second is played, *but no sooner than is necessary to bring the second finger over its key.* As the second finger is played on D, the released thumb passes under the hand to its next playing position. *Notice that there is no loss of motion in raising the thumb before passing it under, but rather a direct motion of the thumb from its key to its next playing position under the fourth finger.*

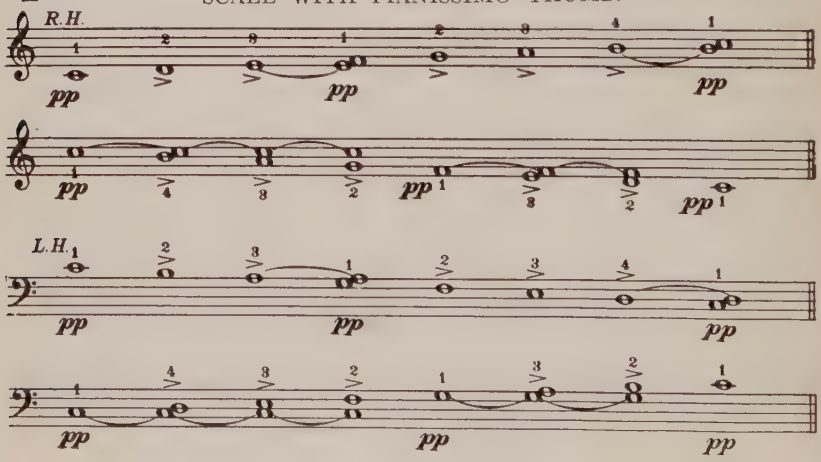
To pass the hand *over* the thumb, draw the thumb out over C, drop lightly, lifting the second finger and swinging the hand immediately over, using the thumb as a pivot. If the wrist is turned out, the fourth finger is now over B. There should be no turning in and out of the hand at the wrist. *The only action is the contraction of the thumb flexor, which draws the hand over the thumb, just as it also draws the thumb under the hand.* As the fourth

finger plays B, the thumb is raised up *under* the hand to repeat the exercise. Care must be taken that all of the action is correct. When the thumb is played either in five-finger position or under the hand, *its lifting muscles must relax*, allowing the thumb to drop freely. If this is done correctly, there will be no drop of the arm, and the tone will be soft. Again, as the hand swings over from the fourth to the second finger, there is liable to be a contraction of the thumb muscle, *between the thumb and second finger*, and which, as the thumb rests on its key, will pull the hand down, causing a drop of the forearm when the second finger is played. This is, of course, wrong; the action should be a contraction of the *second finger flexor*, the tone-producing muscle for the second finger. In passing the hand over, the most common fault is the contraction of the abductor muscle in the forearm, which draws the hand in from the wrist. The time between each motion should be long enough to mentally conceive with absolute clearness the next movement before proceeding. The movement then should be as quick as possible, and yet be accurate.

Practice the following exercise two octaves.

Exercise II, Daily Technic.

II SCALE WITH PIANISSIMO THUMB.



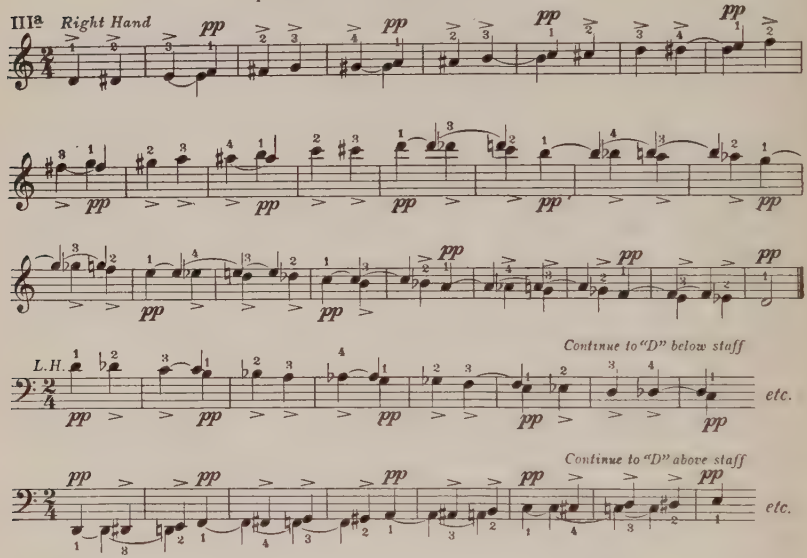
At first count three to each note very slowly. Later, when accuracy is attained, count two and finally one to each note. Hold the fourth finger not only for its own three counts but also *through* the three counts for the thumb. Raise the fourth finger, swing the hand into position for the next key, play the second finger and pass the thumb under all *on the first count for the second finger. This must not delay the second finger until just after its first count.* It will be seen that the motion must be very rapid and light. In reverse direction, the thumb is held not only for its three counts but also through the counts of each of the other three fingers. Then the thumb is drawn out and up and dropped relaxed, while the hand is swung into its next position over the thumb, *all on the first count for the thumb.* This very complicated proceeding will not produce good results unless each muscle acts properly and at the right time. With correct practice of this C scale, however, together with the following additional scale practice, a most even, liquid scale is obtained.

The Chromatic Scale. — The chromatic scale is an excellent supplement to the scale of C, being practiced in exactly the same manner. The old-fashioned fingering of alternating the thumb and third finger, using the second only where two white keys come together, is a poor fingering where evenness and velocity are desired. The thumb, the slowest finger of the hand, is obliged to make as many motions as the third finger in the same length of time. A fingering which gives the least possible work to the thumb will give the greatest amount of fluency, just as in the diatonic scale. The fingering of this scale should, therefore, be like that of the diatonic scale, with the thumb used only after the third finger, except where the order of the first, second, and third fingers would bring the thumb on a black key, in which case the fourth finger is used. In other words, *the fourth finger is used only as a substitute for the thumb on a black key.* The thumb is never used after the second finger, nor is the second finger ever omitted between the thumb and third finger. This fingering will bring the

thumb on every alternate white key. The fingering of every alternate octave will be the same, and not each octave as in the diatonic scale. (Exercise III[a], Daily Technic.)

CHROMATIC SCALE—PIANISSIMO THUMB

To be practiced in the same manner as II (Scale of C.)



Contrary Motion. — If, when the hands are practiced together, both the scale of C and the chromatic scale are played in contrary motion, attention can be concentrated on the same difficulties at the same time. This is a point of great importance. In this case the chromatic scale should commence on D. These two scales are the only ones to be practiced in this extreme manner with the pianissimo thumb.

Parallel Motion. — It is well in the first parallel practice to use the scale of B major, where the thumbs are played in both hands at the same time. This scale of B should be practiced with the pianissimo thumb and the pivotal fourth finger exactly as in the scale of C. However, as it is being played in parallel motion,

the thumb of one hand will pass under with the *fourth* finger used as a pivot, while in the other hand the *thumb* is used as a pivot, while the other fingers are being played. This will concentrate the attention on the difficulties of simultaneously passing the thumb under the fingers in one hand while passing the other hand over the thumb. This scale may be dropped as soon as the hands are independent of each other. The scale of C and the chromatic scale should form a part of the daily technic, as they, with other forms yet to be given, form the essence of technic, not only building, but also serving to keep up a reliable technic with least possible expenditure of time and effort.

Velocity Scale Practice. — For velocity practice, the easiest type of scale should be selected, A for the right hand, E flat for the left hand. This gives opportunity to concentrate on absolute relaxation without reference to technical difficulties. *Velocity is dependent on relaxation.* These two scales should be practiced in two ways:

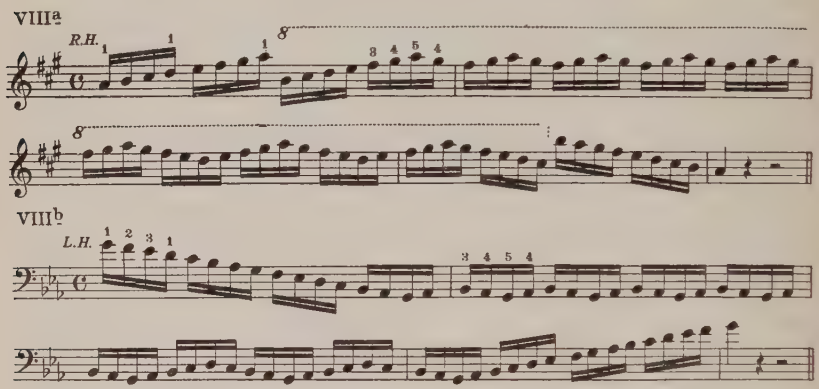
First, slowly, with an absolute relaxation, or pianissimo drop of the finger, gradually increasing the tempo without the use of the metronome. The quality of every tone should be always the same, the ear listening closely for the same pianissimo in the weak fingers as is produced by the strong fingers.

Second, the same scales are to be practiced in quarters, eighths, and sixteenths, with accent on every note of the quarters, every alternate note of the eighths, and the first of each group of four in sixteenths, and finally in thirty-seconds with the accent on the first note of each group. The metronome is used for this second method of practice, beginning each day at an easy tempo and working up by degrees to a higher tempo, until the scales can be played easily in sixteenths without effort and with perfect equality at M.M. = 200 to a quarter note, or even higher. By repeating the third, fourth, and fifth fingers at the turning point of the scale each time, both in this scale practice and in the scale of C, an additional development of the weak fingers is gained.

Exercise VIII, Daily Technic.

VELOCITY SCALE.

Practice first in ♩ ♪ and 𝅘𝅥𝅯 for surety. Then work up with the metronome to the speed limit daily, until a velocity of 𝅗𝅥 = 80 — 100 is acquired.



Formal Practice. — For formal or purely mental practice, to familiarize pupils with signatures and fingerings of the different scales, one major scale and its relative minor may be practiced in octaves, thirds, and sixths with different accents. For example: practice the major with the hands an octave apart, accented in twelfths; a third apart, accented in eighths; and a sixth apart, accented in fourths. The minor may be practiced in ninths, sixths, and thirds, giving the most difficult rhythm to the easiest form. This formal practice should be changed every week, taking each scale in turn.

XI. ARPEGGI.

The technical difficulties of passing the thumb under the hand and the hand over the thumb in arpeggio playing are, as in scale playing, greater after the fourth than after the third finger.

Types of Difficulties. — Thus the type of arpeggio for daily practice is the chord of the seventh. The difficulties may be subdivided into four varieties:

1. In arpeggi where the thumb is played on a white key a minor third after the fourth finger on a black key (*e.g.* the fourth finger of the right hand played on G♯, the thumb on B);

2. A major third after the fourth finger on a black key (*e.g.* the right hand fourth finger on A♭, the thumb on C);

3. A major or minor second after the fourth finger on a white key (*e.g.* right hand fourth finger on G, the thumb on A); and

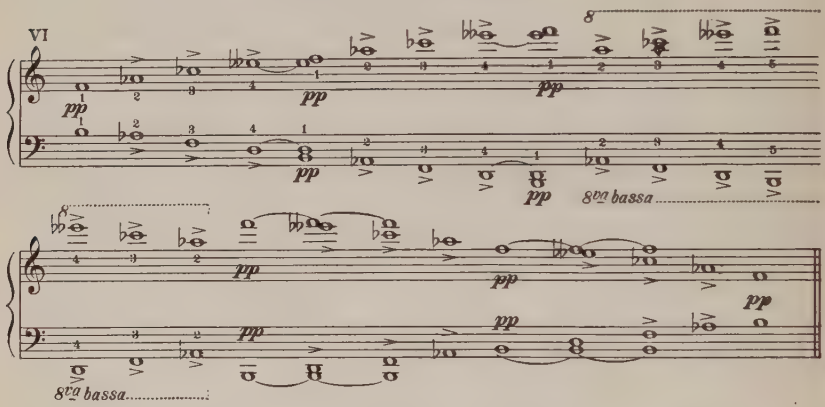
4. A major or minor third after the fourth finger on a white key (*e.g.* the right hand fourth finger on G, the thumb on B).

The last is, as in scale playing, more difficult than the others, and when the third as well as the fourth finger also lies on a white key, it requires still greater stretch of the thumb.

The Diminished Sevenths. — The diminished seventh arpeggi on F in the right hand, and on B in the left hand, are the types of greatest difficulty, and when played in contrary motion bring the same difficulties in both hands at the same time. They should be practiced as in the scale of C with pianissimo thumbs, and exactly according to directions there given (Exercise VI, Daily Technic). The thumb, however, in the right hand descending, and in the left hand ascending, may be released in playing the second finger, as otherwise for most hands the stretch would be too great.

DIMINISHED SEVENTH ARPEGGIO. PIANISSIMO THUMB.

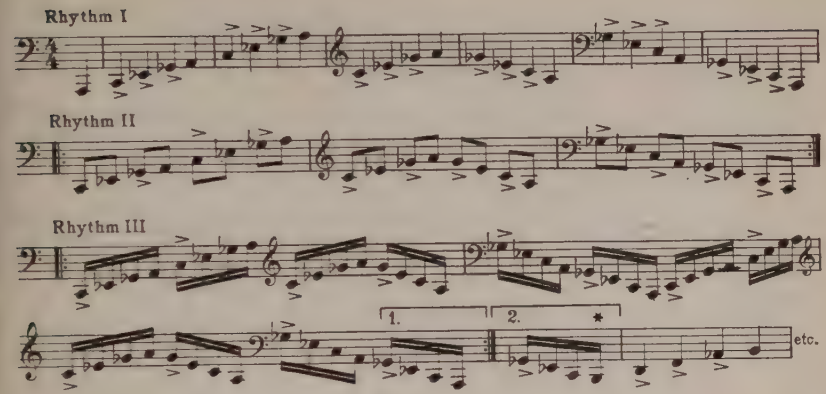
Practice with Finger Stroke and Melody Touch, using the relaxed thumb action; first with hands separately and then with hands together.



Formal Practice. — This practice of the diminished seventh chord is sufficient for building up a brilliant and sure technic in arpeggio playing, but should be supplemented by a thorough study of the principal chords, both major and minor, by pupils who lack a thorough working knowledge of Harmony.

Rhythmical Pattern for VII.

Before taking up the extended exercise in *Diminished Seventh Arpeggi* that follows, it will be necessary to memorize the *Rhythmical Pattern* upon which it is based. When this pattern has been firmly fixed in the mind, and the finger and thumb action somewhat established, take up VII according to the directions that precede it.



Having become familiar with the *Rhythmical Pattern* take up VII. Do not at first use the entire exercise, but practice one section at a time. These sections are numbered 1, 2, 3, 4, etc., and begin and end with a dotted bar line. Next practice two sections, then three, and so on, according to the following plan: —

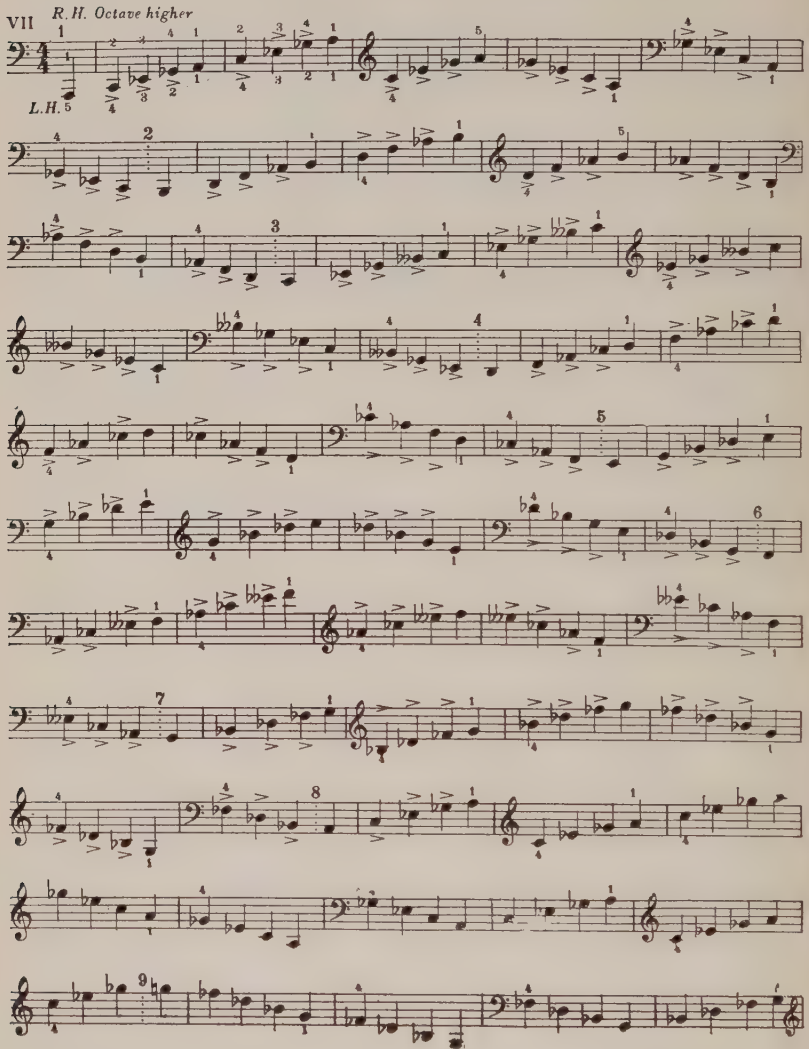
1. With the *hands separately* practice one section at a time in quarter notes until the form of the exercise is learned.

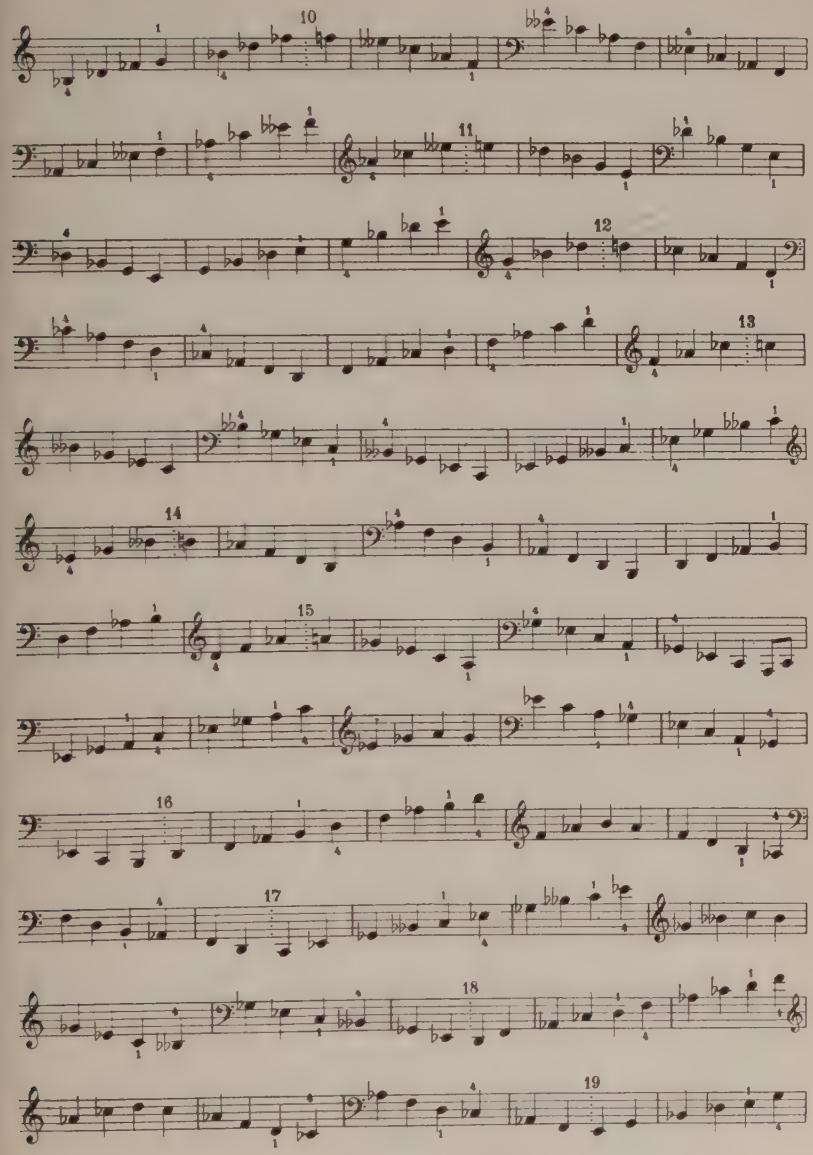
2. With the *hands together*, an octave apart, practice one section at a time according to the *Rhythmical Pattern*, first in quarter notes, then in eighths, and then in sixteenths.

3. With the *hands together*, an octave apart, practice *from memory* the entire exercise in quarter notes. For endurance and fluency repeat it in eighths and again in sixteenths.

4. Lastly, with *hands together* practice the complete exercise, beginning slowly, with quarter notes, and accenting all of the fingers but the thumb, gradually increasing the *tempo* (while keeping the same tone quality) until such velocity is reached that the accent on every alternate note must be omitted, and finally but one note in four is accented.

Exercise VII. Diminished Seventh Arpeggi.

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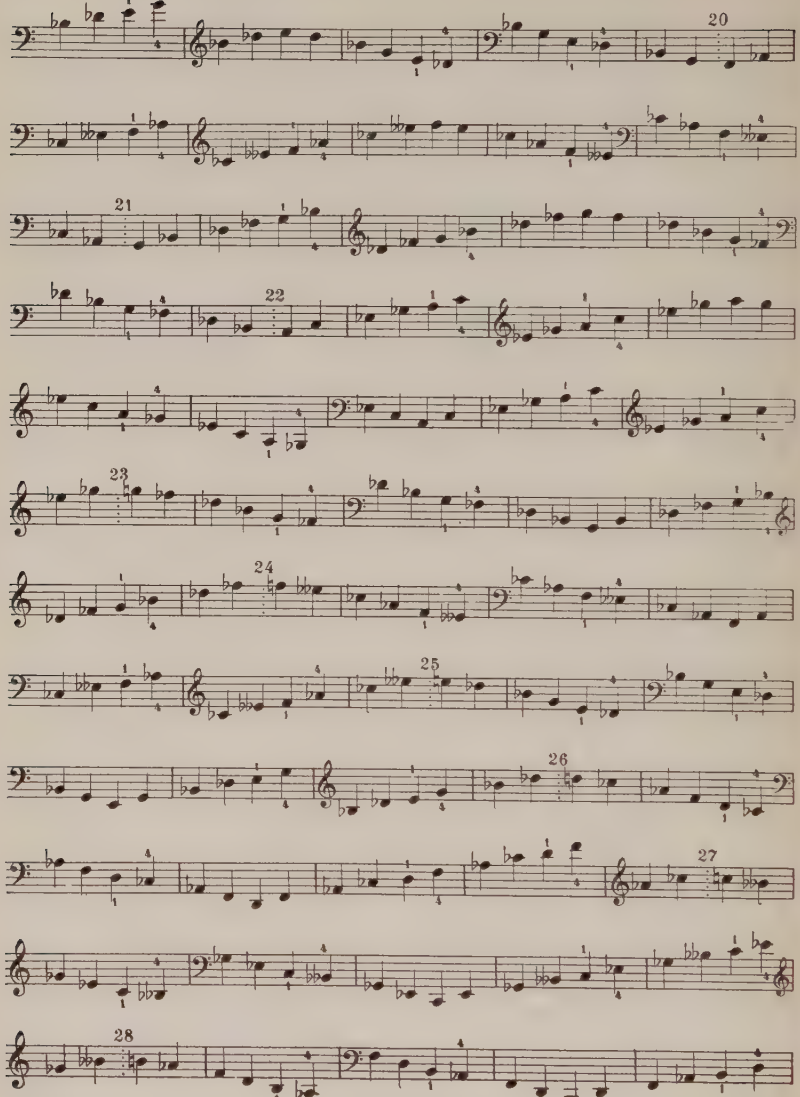
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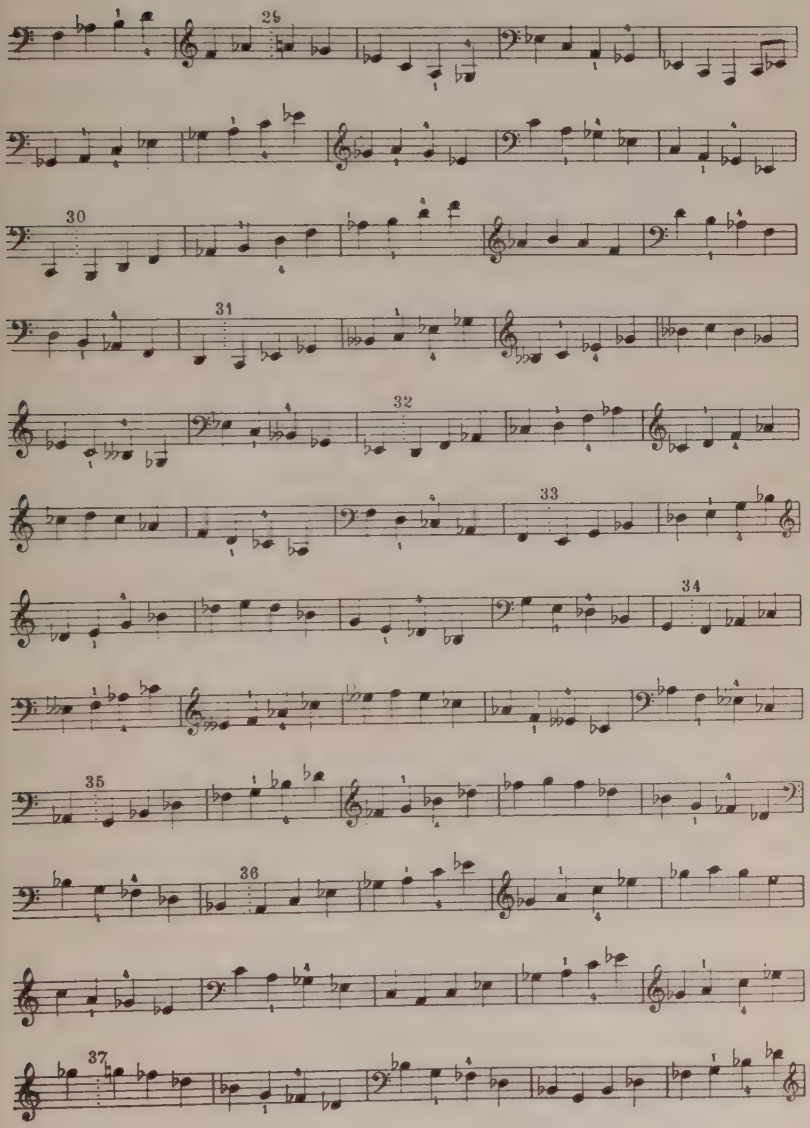
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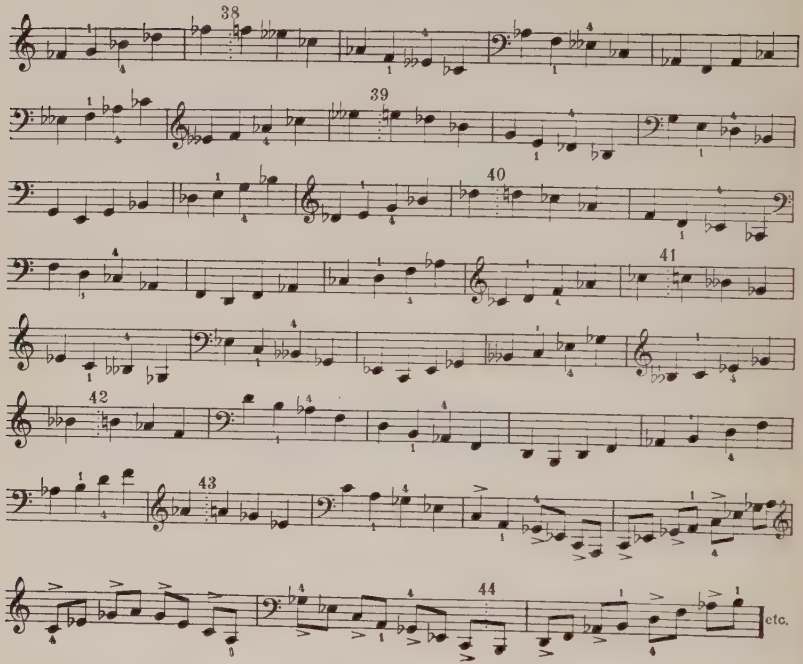
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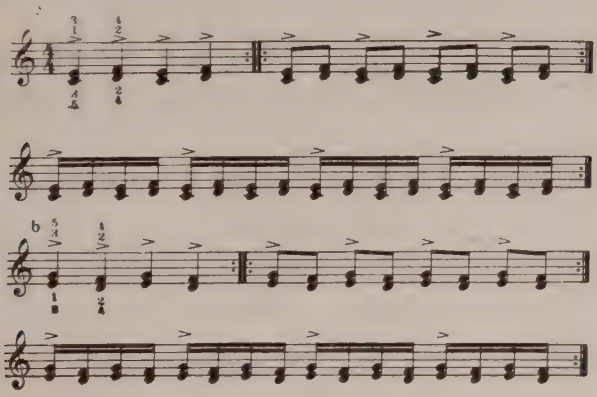
etc.

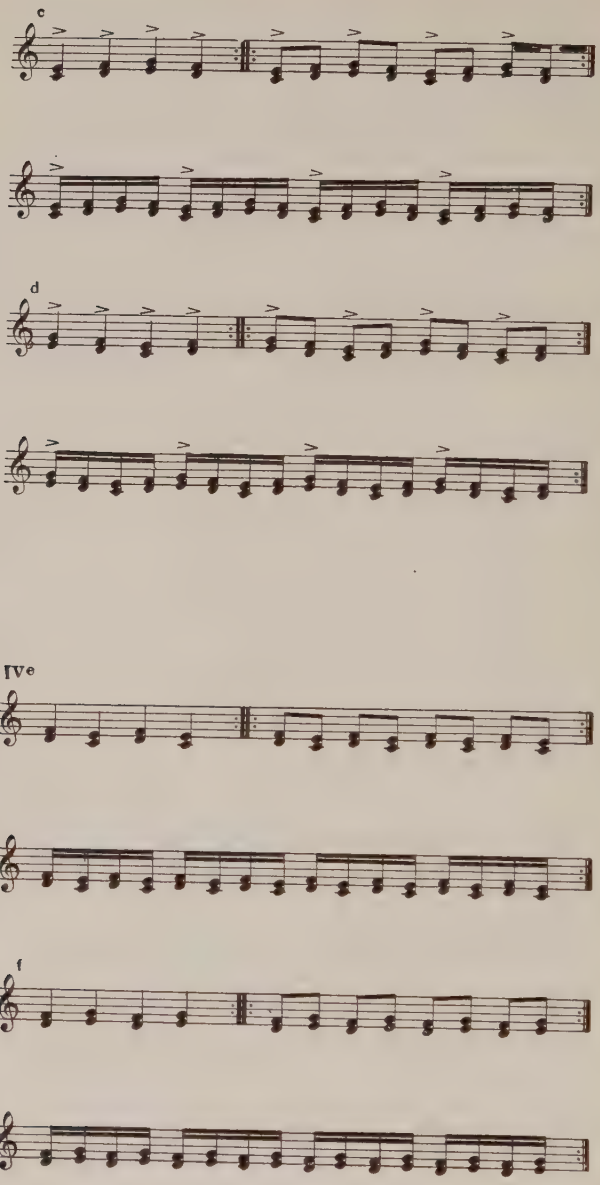
XII. DOUBLE THIRDS AND SIXTHS.

Technical Difficulties. — In double note playing there are three forms of difficulty. The *first* is that of independent action of the fingers to be played while the fingers on either side are holding their keys. The *second* is of playing the two fingers exactly together. As the fingers are not all of the same length, the *knuckles* are not all raised equally high, but rather the *tips* of the fingers raised should be on the same level, in order to give the same distance for each to move. At first the practice should be with one finger held, and the fingers on either side played very accurately together; again with the same fingers alternating; and finally, with the double trill. (Daily Technic, Exercise IV.) The *third* is that of crossing the fingers over and under each other.

RHYTHMICAL TRILL IN DOUBLE THIRDS.

When practicing with hands together, play in contrary motion, using the *same* fingers at the *same* time. For example: while playing section *a* in the right hand play section *b* in the left hand, and *vice versa*. In like manner combine sections *c* and *d*, *e* and *f*, and *g* and *h*.

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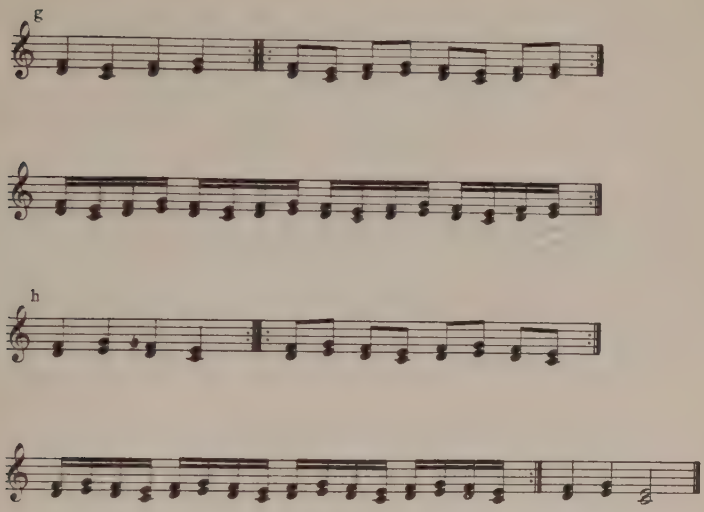


The practice of double notes in rhythmical trill form, and also in the chromatic scale in major and minor thirds and major and minor sixths, covers the technical difficulties of double note playing. (See Exercise V, p. 60.)

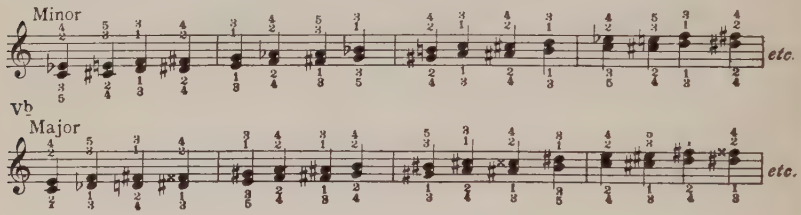
Hand Position. — The wrist must be raised slightly above the level of the hand for scale passages in both thirds and sixths, in order to allow the fingers to pass over and under more readily. It is almost impossible to play a scale legato with a low wrist where the second and third, or the third and fourth fingers are compelled to pass over or under each other; but with a high wrist it becomes fairly easy. The crossing should also be practiced in trill form for facility and accuracy. The fingers must always be played exactly together.

Rules for Fingering. — *Chromatic Double Thirds.* The fingering for the major and minor chromatic thirds is as follows:

In the minor thirds, in the right hand, the fifth finger comes on E and A; in the left hand on C and G. (Daily Technic, Exercise Va.) In the major thirds, in the right hand, the fifth finger comes on F and C; in the left hand, on E and B (Exercise Vb, Daily Technic).

Exercise V, Daily Technic.

CHROMATIC DOUBLE THIRDS.

Memorize the fingering. Practice four octaves in ♩ ♪ and ♬ with hands separately, and also together, both ascending and descending.

Chromatic Double Sixths. In double sixths, the thumb is used consecutively on the white keys B and C, and E and F. The third finger is used only at this point with the *first* of the consecutive thumbs, in the right hand ascending, and in the left hand descending.

Major Scales in Double Thirds. In the major scales in double thirds, the fifth finger of the *right hand* is used on the dominant in all the sharp scales except F♯ and C♯, which are fingered like G♭ and D♭; in the flat scales it falls on either G or G♭.

In the *left hand* the fifth finger is used on A or A♯ in the sharp scales, and on the sub-mediant in the flat scales, except in D♭ and G♭, which are fingered like C♯ and F♯, and in C and F, where the fifth finger comes on the keynote.

Minor Scales in Double Thirds. The minor scales are fingered like the major scales of the same name except in F♯ and C♯ minor, where the fifth finger is used on the leading tone; in C minor, where it is used on the keynote in the right hand; and in A minor, where it is used on the dominant in the left hand.

XIII. PEDALS.

Much beautiful playing is greatly marred by a faulty or careless use of the pedal. First and foremost must be fully understood the pedal mechanism of the piano; then there must be careful and systematic practice to obtain as complete control of the foot as of the hands and fingers, as the foot, in artistic pedal work, is compelled to be entirely independent of anything which the hands may do.

The piano action as affecting a pure legato has been described at some length in the section on *Touch*. The paragraph referring to this present chapter should be thoroughly understood before proceeding further.

The Three Pedals. — There are usually three pedals attached to the modern grand-pianoforte; the *damper pedal*, the *tone-sustaining pedal*, and the *shifting* (German *Verschiebung*) or *soft pedal*, as named from right to left.

Damper Pedal. — The damper pedal has often been called the soul of the piano. Rather is it to the piano what the breath is to the singer, a means of prolonging a tone. When the breath is cut off, the tone stops. Not so poetic, but nevertheless more scientific would it be to call it the *breath* of the pianoforte.

The damper pedal is often carelessly termed the "loud" pedal, in contradistinction from the soft pedal. The fact that it raises all of the dampers together, allowing the vibration not only of a certain set of strings, but also of all the strings which produce its overtones, naturally does increase the volume of tone.

Sympathetic Vibrations. — A simple experiment will prove that strings vibrate sympathetically. Press Great C without producing a tone, and hold the key while playing middle C, or the octave higher or lower, releasing the latter key instantly. Although the

damper has cut off the vibration of the upper tone, yet the tone will still sing. Release the lower key and the tone ceases, showing that it was that part of the lower string which produces the overtone or upper C that vibrated in sympathy. Now press the upper C, playing the lower and releasing it instantly; again the upper tone sings, showing that the overtone of the lower had set the upper string in sympathetic vibration. This can be done with the overtone of the fifth or third as well. Although opening all of the strings by means of the damper pedal causes many sympathetic vibrations, thereby increasing the volume of tone, yet that tone is not necessarily loud, and the term *loud pedal* is therefore inaccurate. It is rather the *damper pedal* for it raises the dampers. The damper pedal not only enables the pianist to secure a perfectly legato singing effect, but also by means of it, beautiful floating effects of whole harmonies are produced, the more ethereal on account of the sympathetic overtones than because of any mere legato sustained effect.

Uses of the Damper Pedal. — There are three ways of using the damper pedal. First, where a single tone or chord is to be connected with what follows. In this case, the pedal action is on the same principle as the legato finger action ; a *legato between finger and foot.* To produce a pure legato, the dampers must be held off from one set of strings *until the next commence to vibrate, and then instantly released* so as to avoid overlapping of the tones. Now, however, if they are immediately again raised by pressing the pedal, the longer strings, which vibrate more slowly, will still continue to sing, as only part of their vibrations have been interrupted. It will therefore be necessary, in order to obtain a pure tone free from dissonant vibrations, to allow the dampers to remain on the strings *until all vibration from the first set has ceased.* The longer the string the longer will this be necessary. This can be easily proved by playing fortissimo a tone in the Great or Contra octave. Release the key *after first lifting the damper* with the pedal, then drop and raise the dampers again rapidly several times. It will be

seen that the tone becomes more and more stripped with each drop of the dampers, but still sings for some time. By playing a tone in the one-lined octave or above, in the same manner, it is found that its vibrations are much more quickly stopped. Thus it is possible to sustain a low fundamental tone, while the dissonances of a changing melody and upper harmonies are entirely eliminated by rapid change of pedal, i.e., by rapidly dropping and raising the dampers. *As soon, however, as the fundamental tone is changed, or a complete change of harmony occurs, the dampers must remain on the strings long enough to completely interfere with the vibrations.*

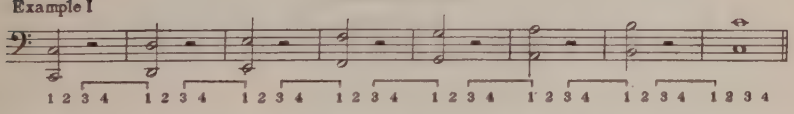
In connecting two bass tones or low-lying harmonies, therefore, the dampers should be allowed to *remain on the strings until just before the fingers leave the keys for their next tone or chord.* At this point the dampers must be raised by means of the pedal. If the fingers leave the strings before the dampers are raised by the foot, the tone is cut off quite as surely as when without the use of the pedal, one finger is raised before the next is played.

Harmonic Pedal. — Take the scale of C in the Contra octave for example. Play the left hand portamento in octaves as half notes with half rests between each. Just as the finger is to leave the key, open the strings, or, in other words, raise the dampers by pressing the pedal. Keep the strings open by means of the foot until the next ones are played, when the strings must be closed; i.e., the pedal is released, thereby dropping the dampers. Proceed with each tone as before, opening the strings with the pedal just before leaving each key, and closing them on playing the new key. In slow tempo,

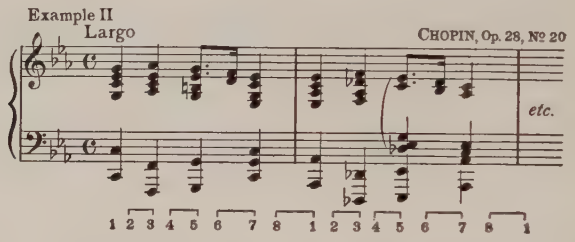
THE PEDALS

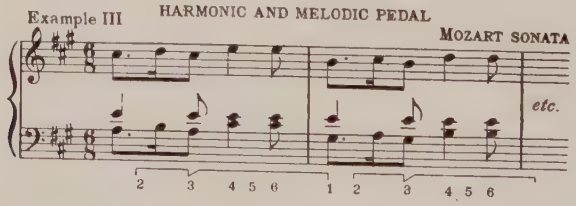
HARMONIC PEDAL

Example I

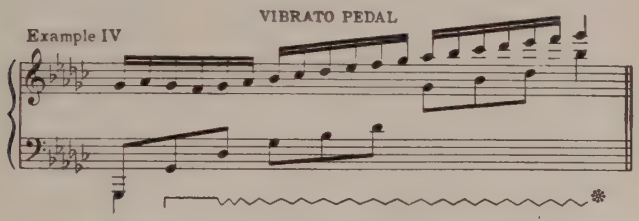


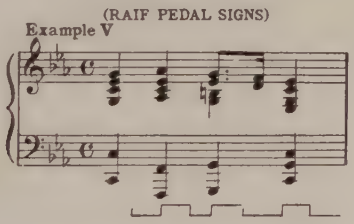
this gives the dampers ample time to close each string completely

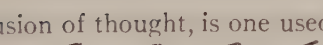
before the new tone is left with the fingers, preserving a pure legato without overlapping. If each tone is played as a whole note, detached, but with no rests between, the pedal action will be the same. This may be called the *Harmonic Pedal*, because of its use in complete changes of harmonies. (Examples I and II.)

Melodic Pedal. — By a more rapid manipulation of the pedal, allowing the dampers to drop on the strings, but rising immediately, there is little interference with the vibration of the long, heavy strings, while the quick damping will completely stop the more rapidly vibrating shorter strings. This enables a fundamental to sing through changing melody tones and higher harmonies, while the dissonances are completely eliminated. This rapid damping of the strings usually falsely passes for accurate pedal work even for fundamental harmonies, but in order to produce an exquisite artistic effect, it must be studied very carefully and accurately. To distinguish this from the *Harmonic Pedal*, it may be called the *Melodic Pedal*. (Example III.)



Vibratory Pedal. — Where rapid passage work is to be cleared out while a fundamental tone or harmony is sustained, the rapid open-

ing and closing of the strings must be so continuous that the effect is that of a vibrating damper, suggesting the name *Vibratory Pedal.* If accurately used, the fundamental harmony will float, while the passage work is dainty and clear. (Example IV.)

Inaccurate Pedal Signs. — Ordinary pedal signs are a delusion and a snare. For example, in Chopin's Nocturne, Op. 9, No. 2, as nearly as one can judge by the pedal marks, the dampers are raised with the fundamental and dropped with the last melody note before the change of harmony. It will be clearly seen by this that the fundamental, as well as the harmony, which cannot be sustained by the fingers, is lost before the next is played. This is not the composer's intention, but is a careless method of pedal marking. A much better pedal marking, but still one which gives

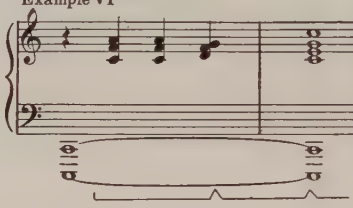


room for confusion of thought, is one used in many excellent American editions,  . It signifies the down and up movement of the foot, but gives no idea of the Harmonic and Melodic Pedal. A pedal marking used originally by Oscar Raif is very clear, but directs attention, as do both of the preced-

ing signs, to the foot action and the pedal. The sign |__ indicates the down action of the foot or pressing the pedal, while ¯| indicates raising the foot or lifting the pedal. (Example V.)

The sign ∧__∧__∧_ indicates a rapid change of pedal, or lifting the foot and rapidly pressing it down again. (Example VI.)

Example VI



Simple and Accurate Signs. — The sign ¯| indicates the opening and closing of the strings by raising and dropping the dampers. That is, the dampers are lifted on the third count, opening the strings and allowing them to vibrate. They are then dropped on the first count of the next measure, closing the strings of the old tone just as the new tone is played. (Examples I, p. 63 and II, p. 64.)

The sign for the Melodic Pedal again concentrates the thought upon the dampers rather than upon the pedal or foot. (Example III, p. 64.)

The thought should be directed to the opening and closing of the string rather than to the foot; to the effect, rather than to the means. This was Raif's real intention, his appeal being constantly to the ear and the musical perception, and these signs are simply an inversion of those used by him.

Tone-sustaining Pedal. — The middle pedal acts only upon those dampers which by the key stroke are already lifted when this pedal is pressed. It is used to sustain a tone or combination of tones through a long-continued series of dissonances, as in an organ point. Care must be taken that the damper pedal is not used until after the tone-sustaining pedal secures its dampers, as the latter

pedal will catch and hold up all dampers which are lifted when it is used. No sign is necessary for this pedal.

The Soft Pedal. — The Sordino, commonly called Soft Pedal, moves the keyboard, and therefore the hammers, to the right in the modern grand-pianoforte. The hammers strike on only two strings instead of three and the tone is correspondingly smaller. The felt of the hammers has also been less used and the tone is therefore usually more velvety. The term *una corda*, or one string, is used by composers to indicate the use of the Soft Pedal, as formerly the hammers were shifted to one string; and *tres corde*, or three strings, to indicate its removal. But this Soft Pedal is often used to produce fine, delicate effects without such indications. The pedal may be pressed before playing the passage and held down until the end, but care must be taken to blend the tones in its removal, or the tones will suddenly be not only louder, but also of a different tone quality. A crescendo should be made on the two strings, and, commencing softer on the three strings again, make a crescendo to the desired point. The mechanical effect would be

, but the audible result, , or a gradual crescendo.

The artist, or he whose musical perception is fully developed, needs no signs for guidance, and the pupil should be taught as soon as possible to be intelligently independent of all pedal marks.

XIV. DAILY TECHNIC.

After fully mastering the principles of muscular action and reaction, the student is ready to take up the study of daily technic in its concentration of time and effort on the greatest difficulties.

Too many pupils are impatient with any systematic technical practice, desiring only the study of the interpretation of compositions which interest from their musical content. These same pupils overlook the fact that the proper and artistic interpretation of any composition is absolutely dependent upon the quality of the technic under command. In so far as this technic is deficient, insomuch will the interpretation fall short of artistic and effective performance. After years of inaccurate effort, where much time and strength have been wasted, a few come to the realization of the necessity of systematic study, let the cost be what it will. Much depends upon the ability of the teacher to inspire both confidence and enthusiasm, as well as upon the temperament of the pupil.

Preparation for the Daily Technic. — In order to make a solid foundation on which to build, with pupils who have faulty or unformed hand conditions, it will be found necessary to make a careful study of the fundamental elements of this daily technic before proceeding to the concentration of time and effort on the greatest difficulties. These difficulties are, therefore, reduced to their simplest form in the following exercises.

They are grouped under the various sections, with the simplest forms leading step by step to the more complex forms of the same difficulty. Therefore until exercise A under each section is fairly mastered, exercise B of the same section will not be undertaken, and each preliminary step may be dropped as soon as its work of thorough preparation for the following exercise is fully completed.

At least one form of each main division is to be practiced in the daily technic until the entire division is completed, when the pupil is ready for the regular technical work.

Table Preparation. — To obtain the greatest benefit, these exercises must be separated from all distractions of tone and key combinations. It has long been an accepted fact that preparatory work can be best accomplished on the table before going to the keyboard, but contrary to some well-known methods of study, in which it is insisted that the entire preparatory course be completed before practice on the piano is commenced, I have found the results in every respect better when *each step is applied to the keyboard as soon as mastered at the table, but not before.*

The pupil is thus taught to *listen closely to the tone quality* in each succeeding exercise as its fundamental principles are being explained, and not to wait until the exercises become a drill which is first performed at the table and then on the keyboard. *Attention must ever be focused on the quality of the work done, realizing that accuracy in each movement means economy of time and effort.*

Development of Power. — Until these exercises are accurately performed, it is better not to strive for endurance, but only for an ordinary amount of equality and surety, which comes from a stroke without effort. With effort comes contraction, and unless proper control of the right muscles is fixed, stiffness will ensue, while the mind is being distracted by various difficulties and combinations of difficulties. As soon as correct conditions become established, more and more tone can be required, until the greatest amount of which the muscles are capable is produced. By daily effort in the right direction this should constantly become greater, as the muscles by judicious practice become stronger.

PREPARATORY EXERCISES.

Section I. — To obtain Hand Position and Free Finger Action.

a. To contract the flexor of the first phalanx, raise the hand from the wrist and throw each finger separately from the first joint. (Fig. 30.) In this exercise, avoid contraction of the flexors of the third and second phalanges (Fig. 31), as the object is to obtain conscious control of each separate muscle. Again, throw all the fingers together.

Fig. 30.

b. Lay the forearm on the table with the fleshy part of the thumb resting on the table. Raise the finger with sufficient contraction of the flexors of the third and second phalanges so that the tip points downwards. (Fig. 32.) Throw the finger from the first joint. This will bring the **finger tip** and **not the ball** on the table. (Fig. 33.)

Fig. 31.

c. Lay the forearm on the table with the fleshy part of the thumb resting on the table. Relax the third and second flexors so that the finger tip is slightly extended. Throw each finger from the first joint with flexor contraction, so that the finger will reach the table on the **ball.**

d. Start again as at *c* but throw with a feeling of pulling slightly as at III *c*. For both *c* and *d* the finger should be somewhat extended when raised, and form a long curve when reaching the table. (Fig. 34.)

e. With one finger supporting, throw the adjoining finger both as at *b* and at *d*; that is, both on the ball and on the tip. (Fig. 35.)

f. Two finger exercise, throwing fingers alternately, but legato. (Slow trill.)

g. Three finger exercise. (Slow turn.)

h. Five finger exercise, each finger being thrown in turn.

i. Practice *h* for dynamic shading; pianissimo, piano, mezzo-forte, forte and fortissimo, commencing on each finger in turn.

j. Preparation for double notes.

k. With all the fingers but one supporting, throw the free finger. (Fig. 36.)

l. With three fingers supporting, throw the other fingers.

m. With two fingers supporting, throw the other fingers.

n. With one finger supporting, throw all the other fingers.

o. Practice the five finger exercise for absolute relaxation.

Section II. — Portamento.

a. Drop the forearm relaxed, so that the hand hangs supported by the finger tips on the edge of the table. (Fig. 37.) Slowly contract the flexors of the third and second phalanges. (Fig. 38.)

b. Start again as at *a*, but contracting the flexor of the first phalanx, without reference to the contraction of the third and second phalanges.

c. Drop the tip of one finger on the edge of the table and contract at all three joints of the finger, so that it assumes a long curve. Be sure that the muscles of the upper arm are relaxed so that

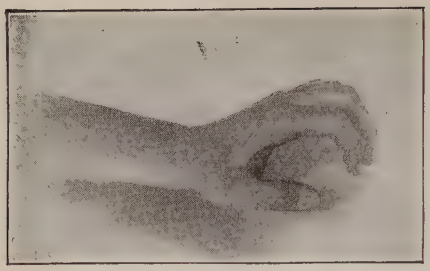


Fig. 32.

Fig. 33.

Fig. 34.

Fig. 35.

Fig. 36.

Fig. 37.

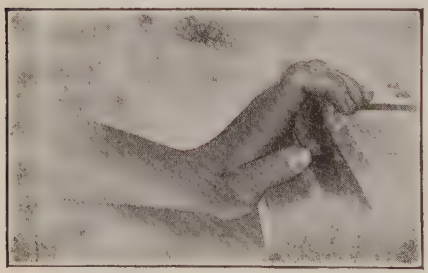


Fig. 38.

Fig. 39.

the weight of the forearm is supported by the ball of the finger. (Fig. 39.)

FIG. 40.

d. Raise and lower the wrist very slowly without changing the long curve of the finger. (Figs. 40 and 41.)

e. Assume the position as at *c.* Slowly raise the forearm from the elbow without allowing the hand or fingers to drop or relax. (Fig. 42.) Hold for an instant a few inches above the table. Then suddenly relax the biceps, allowing the forearm to drop, until the finger reaches the table exactly on the ball in the same position in which it started.

FIG. 41.

f. Take the position as obtained at *c.* Raise the forearm from the elbow, but cling to the table with the ball of the finger until the forearm is raised as high as possible. Then drop the forearm, retaining the arch of the finger.

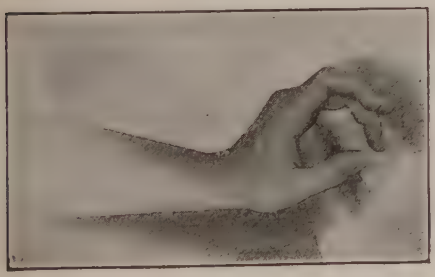
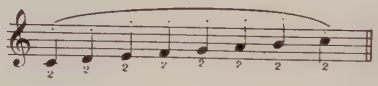
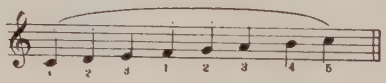
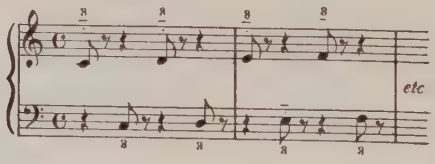


FIG. 42.

g. Again start as at *c*, with the weight of the forearm on the ball of the finger. Slowly raise the forearm from the elbow, clinging to the table with the ball of the finger (Fig. 41) until the

forearm has been raised as high as possible; continue the upward motion until the finger is finally drawn up a couple of inches above the table. (Fig. 43.) Then with the forearm suspended as above, gradually relax the biceps allowing the forearm to drop, until the wrist is below the table. As the wrist reaches its lowest point (Fig. 42), the finger reaches the table, pulled down by the drop of the forearm and not by any finger action. **Be sure that the finger reaches the table on the ball and not on the tip.** Also allow no outward motion of the elbow or upper arm, nor a turning of the hand sideways. (Fig. 39.)

FIG. 43.

h. Scale portamento, with each finger alone.

i. Fingers consecutively in a five finger or scale exercise.

j. Hands alternately, first detached, one forearm dropped and raised again while the other is held suspended in the air.

Again one forearm dropped just as the other is being raised. (Fig. 44.) This latter gives a legato effect between the two hands.

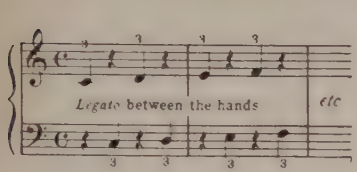
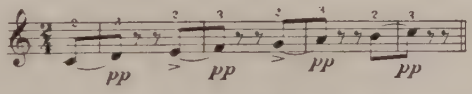
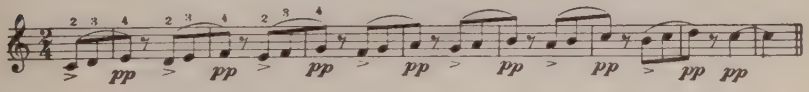


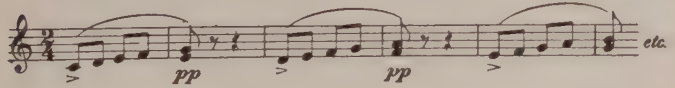
FIG. 44.

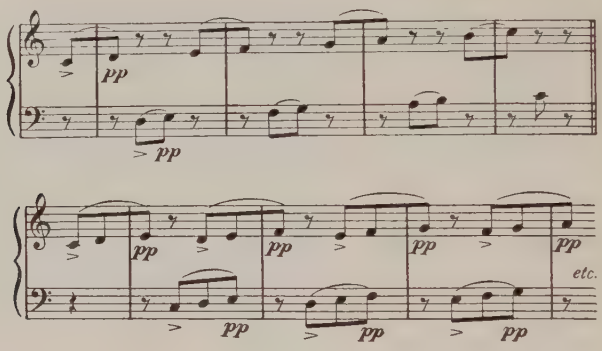
k. Two finger exercise (preparatory phrasing exercise). Drop on the second finger with the first half of the portamento touch as at *g*. Play the third finger legato with **relaxed finger action,** and finally raise the forearm with the last half of the portamento touch, as at *g* (first half of the exercise). The forearm must not be raised while the third finger is being played, but **afterwards. This is the attack and finish of a phrase,** the last note having the soft or vanishing quality, unless otherwise indicated. Practice this exercise with each set of fingers.



l. Three and five finger phrasing exercise with **attack** for the **first** finger played, using a **legato stroke** for the **intervening** fingers. Play the last finger with a relaxed finger action.





m. Hands alternately with exercise *k* and *l* both detached and connected. (See *j.*)

n. Portamento double notes; 3rds, 4ths, 5ths, 6ths and octaves.

o. Triads and chords, for separation of the fingers.

Section III. — To obtain Pressure or Melody Touch.

a. Begin with the alternate contraction of the flexor and extensor muscles of the third and second phalanges, slowly drawing the finger tip in until it touches the first phalanx. Extend again slowly, but without resistance. (Fig. 45.)

Fig. 45.

b. Lay the forearm on the table, the palm of the hand resting lightly on the table. Draw in the finger tip as at *a.* (Fig. 46.)

c. Lay the forearm on the table. Pull again with the tip of the finger, but without allowing the finger tip to slide in. This time the tip of the finger remains stationary, the forearm being pulled slightly forward by flexion of these same muscles. Take care that the finger does not rock forward on the nail

and that the feeling of pulling is entirely in the ball of the finger. (Fig. 47.) Again in the same manner, but also contracting the flexor of the first phalanx. (Fig. 48.) Draw the elbow back with elastic resistance in the finger-flexor.

d. Rest the finger tips on the edge of the table; relax the upper arm completely so that the ball of the finger is compelled to cling to the table to prevent being dragged off by the weight of the forearm. (Fig. 49.) Contract the same flexors of the third and second phalanges until the finger is well curved, while the feeling of pulling is again in the ball of the finger. (Fig. 50.) Drop again relaxed.

e. Start again as at *d*, but contracting also the flexor of the first phalanx. (Fig. 51.) (Not to be used until after *d*.) Pull the arm down again with elastic resistance in the finger flexor.

f. Drop on the second finger so that the forearm weight is supported by the ball of the finger in the same position obtained at *e*. Raise the third finger in playing position. Pull the forearm down by triceps contraction with elastic resistance of the second finger flexor until the third finger is brought down to the same position on the table or keyboard. Contract the flexor of the third finger, raising, by this means, the finger arch, and therefore the entire forearm, until the second finger is brought into playing position.

g. Again in the same manner, but with a slight contraction of the **flexor of the third finger,** as the flexor of the second finger is being extended or pulled down. When this is done correctly, the feeling is as of playing upon thickly padded surfaces, so no blow is felt.

Section IV. — Additional Chord Preparation.

a. Extend the fingers with the forearm on the table. (Fig. 52.) Pull with the balls of all of the fingers together so that the fingers become curved, and the forearm pulled slightly forward. Each finger must be contracted at all three joints in bringing the hand into playing position. (Fig. 53.)

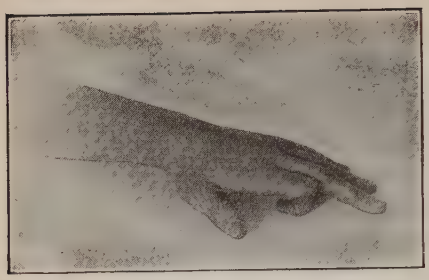


FIG. 46.

FIG. 47.

FIG. 48.

FIG. 49.

FIG 50.

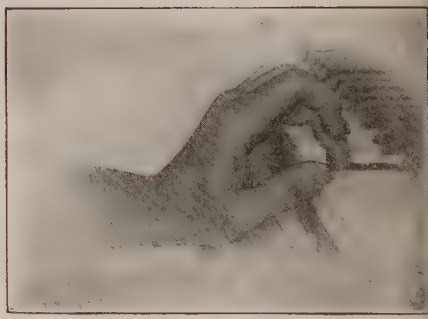


FIG. 51.

FIG. 52.

FIG. 53.

b. Raise the forearm, the outstretched tips resting lightly on the table. (Fig. 54.) Drop the forearm and grasp simultaneously with the balls of the fingers. (Fig. 53.)

c. Start again as at *b*, but with the hand hanging a little above the table.

d. At the keyboard in five finger position play as at *a*, *b* and *c*. Lay the fingers straight out on the keyboard for *a*, with the third finger of either hand between the two black keys, and the others on the adjoining white keys. The fingers must not be allowed to slide on the keys, but must press the keys down with the balls of the fingers *just as they are being flexed;* neither before nor after. For *b* and *c* the action is the same except that the forearm is raised and dropped to give added breadth of tone. Play the same exercise again in chord position. (Fig. 55.)

e. Staccato chords. Drop the forearm and grasp with the ball of the fingers as at *c*, but raise again, immediately leaving the keys.

f. Play the chords from the wrist with hand staccato, elastic staccato, portamento and marcato, in octave skips and in different positions.

Section V. — Thumb Exercises.

a. Rest the forearm on the table, with the hand raised from the wrist. Draw the well curved thumb out from the hand with the tip pointing toward the hand, and raised to playing position. (Fig. 56.) Throw the thumb under the hand until the tip touches the palm between the fourth and fifth fingers. (Fig. 57.) Draw out and up to first position with the same quick decided action.

b. Lay the forearm on the table, with the hand in playing position and the fleshy part of the thumb resting on the table. Drop the second finger on the table for support. Drop and raise the thumb vertically. Keep the tip always curved. Use no stroke for the drop, but merely a relaxation of the lifting muscles, and raise again always to the level of the hand.

c. With the second finger supporting as at *b*, pass the thumb under and back to position as at *a*.

d. Start with the fourth finger supporting on the edge of the table, the thumb under the hand, and the tip of the thumb touching the palm between the fourth and fifth fingers. The hand must be turned out so that the thumb is over the edge of the table. Relax the upper arm, which will allow the forearm to drop, giving a low wrist and perfect freedom from all tension. (Fig. 58.) Keep this condition throughout the exercise. Relax the thumb flexor, allowing the thumb to drop on its nail on the extreme edge of the table. (Fig. 59.) Be sure that the thumb is kept well curved, and that the condition of relaxation in both thumb and forearm is perfect. Raise the thumb to first position and repeat.

e. Start with the thumb supporting on the edge of the table, the hand turned out and the forearm in the same relaxed condition as at *d*. (Fig. 60.) Without allowing the tip of the thumb to move or slide on the table, draw the hand lightly over the thumb until the tip can be seen between the fourth and fifth fingers. (Fig. 61.)

Keep the thumb always curved and *use only the thumb flexor* to draw the hand over. The abductor and adductor muscles in the forearm which turn the hand in and out from the wrist *must not be used*. Swing the hand out on the pivotal thumb to first position. Repeat. If correctly done, this exercise will bring into play the same muscles as those used in Section V *a* and *no other muscles*.

Combinations.

f. With the second finger supporting on the edge of the table: 1. Pass the thumb under. 2. Draw the thumb out and up. 3. Drop the thumb in five finger position. 4. Hold. Repeat.

g. With the thumb supporting: 1. Drop the second finger and pass the thumb under simultaneously. 2. Draw the thumb out and up. 3. Drop the thumb in five finger position and raise the second finger simultaneously. 4. Pass the hand over. 5. Pass the hand out. 6. Hold. Repeat.

FIG. 54.

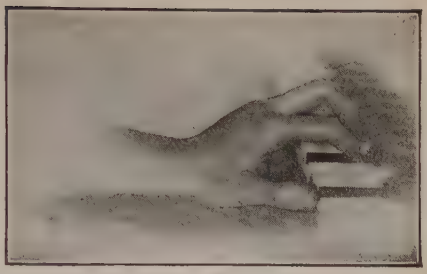


FIG. 55.

FIG. 56.

FIG. 57.

FIG. 58.

FIG. 59.

FIG. 60.

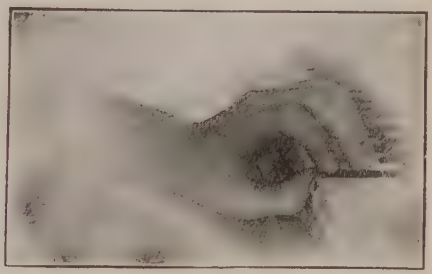


FIG. 61.

h. With the thumb supporting: 1. Draw the hand over. 2. Drop the fourth finger over the thumb. 3. Raise the fourth. 4. Pass the hand out. 5. Drop the second finger. 6. Raise the second finger. Repeat.

i. Play as at *g* but combining 2, 3 and 4, also 5 and 1 as one motion.

j. With the fourth finger supporting, and the thumb under the hand: 1. Drop the thumb. 2. Raise the fourth finger, pass the hand out, play the second finger and pass the thumb under simultaneously. 3. Draw the thumb out and up, drop it and pass the hand over simultaneously. 4. Drop the fourth finger. 5. Raise the thumb. 6. Hold. Repeat.

k. With the second finger supporting: 1. Drop the thumb and pass the hand over simultaneously, bringing the fourth finger into playing position over the thumb. 2. Drop the fourth finger. 3. Raise the fourth finger and pass the hand out, drop the second finger and pass the thumb under, all simultaneously. 4. Bring the thumb out and up. Repeat.

l. With the thumb supporting and the hand over the thumb: 1. Drop the fourth finger. 2. Raise the fourth finger and pass the hand out, drop the second finger and pass the thumb under as one complex motion. 3. Draw the thumb out and up. 4. Drop the thumb and pass the hand over simultaneously.

m. Play as at *l* combining 3 and 4 as one complex motion.

n. Four finger exercise, passing both the thumb and the hand. Start with the fourth finger supporting: 1. Drop the thumb. 2. Raise the fourth finger, pass the hand out and the thumb under and play the second finger as one complex motion. 3. Throw the third and raise the second finger. 4. Throw the fourth and raise the third finger. 5. Hold the fourth finger as a support, and drop the thumb. 6. Play the thumb several times, dropping always relaxed. 7. Hold the thumb as a support, raise and play the fourth finger. 8. Play the third finger raising the fourth finger. 9. Play the second and raise the third finger. 10. Bring the thumb

out and up, drop it and pass the hand over simultaneously. 11. Play the fourth finger. 12. Raise the thumb. Repeat.

o. White key scale exercise at the keyboard commencing on D. Drop the thumb several times every time it is used, to be sure of its relaxed condition. (With more advanced pupils use the greatest difficulty every time, that of the thumb after the fourth finger).

p. With the fourth finger supporting on D drop the thumb relaxed on a minor third below in the left hand and a minor third above in the right hand.

q. Diminished seventh arpeggio on D with pianissimo thumb to be practiced as at *n*. When practicing *o* and *q* hands together, play in contrary motion in order to bring the same difficulties at the same time.

r. Chromatic scale in contrary motion on D, with the relaxed thumb action.

Section VI. — Non-legato and Octaves from the Elbow.

a. Raise the forearm from the elbow with the hand on a level with the forearm. Drop on each finger in turn on the edge of the table. Avoid relaxing the finger flexors or allowing the hand to be forced up by contact with the table. There must be no feeling of rigidity, however, and the action is produced *entirely* with the triceps. *The arm is raised by means of the biceps alone.* (Fig. 62.) Avoid any motion of the finger or hand from the wrist in raising the forearm. The fingers not in use are raised slightly by the extensor of the first phalanx, while the fingers to be used are well defined.

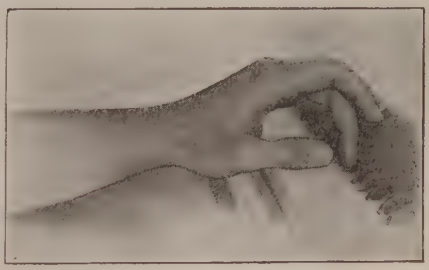


Fig. 62.

b. With the thumb used in this manner as at *a*, play the chromatic scale. Move the hand and forearm in a straight line up the keyboard over the black and white keys, playing the thumb on the edge of the black keys, and in by the black on the white keys. *Never move in and out, in playing the thumb on both black and white keys, as this causes much loss of time and surety in rapid playing.* The thumb must be always curved.

Fig. 63.

c. Same as at *b*, but with the fifth finger.

d. Chromatic scale in sixths *from the elbow.* Keep the hand always arched, with relaxation of the fingers which are not being used. (Fig. 63.) To avoid blurring with the unused fingers, however, the fingers may be slightly extended. (Fig. 64.)

Fig. 64.

e. Chromatic scale in octaves.

f. Diminished seventh arpeggi in octaves.

Practice the exercises in Section VI also from the wrist. *Stay on one key until ready to play the next key*, then throw the hand from the wrist quickly, keeping it well arched and the span unchanged, moving at the same time the forearm into position over its next key. As the hand does not remain in the air these motions must be simultaneous.

Section VII. — Octaves from the Wrist.

a. **Vibrato.** — Relax the muscles of the forearm allowing the hand to hang from the wrist. All playing effort must be made with the two powerful muscles of the upper arm, while the hand is allowed to vibrate freely. (See p. 30, Vibrato Octaves.) Fling the forearm from the elbow allowing the hand to relax. If properly done the hand will rebound with a reflex action.

b. Hold the hand over the table. Fling as above, dropping one finger on the table with a single rebound as of a rubber ball, but without making a second effort from the upper arm.

Fling again with a double and also a triple rebound. Increase gradually the number of rebounds until the motion becomes a continuous vibration of the hand.

c. Play consecutive tones on the keyboard in place of repeated tones in a partial and finally completed scale. For supplementary practice, the accented scale and diminished seventh arpeggi in quarters, eighths and sixteenths are most useful.

d. Combine the vibrato with the other forms of staccato in five finger and scale form.

e. Play the thirds and sixths as at *c* and *d*, both repeated tones and the scale.

f. Play in octaves as at *c* and *d*, both repeated tones and the scale.

g. Vibrate the hand freely from the elbow in rotary motion. Play broken sixths and octaves, both in repeated and scale form.

Section VIII. — Staccato.

a. **Finger Staccato.** — Throw each finger as at I *b*, but instantly returning to playing position.

b. **Hand Staccato.** — Raise the hand from the wrist with the fingers, which are to be used, well defined and arched for playing. Throw the hand down from the wrist with an instant rebound to playing position.

c. **Elastic Staccato.** — Extend the finger slightly by contraction of finger extensors, then contracting quickly at *all three joints* until the finger reaches the palm of the hand. *The ball of the finger must be the point of contact with the table or the key.*

d. **Pizzicato.** — The slightest possible flexing of the fingers from the tip. *The tip of the finger is here the point of contact.*

The above exercises should be always practiced and conquered hands separate on the table, before practicing hands together, and again the same way on the keyboard.

How to Count.

Practice with the metronome, ♩=60, and count at first eight to each motion to give plenty of time to insure correct conditions and to prepare for the next motion. Then count six, four, three, two, one and finally make two motions to a count. When this is accurately done, the metronome beat may be gradually increased. The rapidity of advancement should depend entirely on each individual pupil and not on a stated number of counts to each motion or number of repetitions of each exercise. Some pupils will be able to start at eight counts to a motion and skip to one count with perfect accuracy, while others may require days with the slowest possible practice.

There is no object in practicing hands together until the conditions are absolutely correct with hands separate.

Each exercise should be practiced daily until it can be played three times consecutively without a mistake of any kind. When these preparatory exercises are correctly played, the pupil is ready for the Daily Technic.

Outline of Daily Technic.

The system of daily technic which follows is based on the forms used by Oscar Raif. The principles underlying it are concentration of time and effort on the greatest technical difficulties. Ex-

planations of the several difficulties have been fully explained in the chapters devoted to each.

It merely remains to give an outline of the Raif Technic with modifications and additions found advisable in my own experience.

I. Rhythmical Trill. Equalization Exercise.

II. Scale of C with pianissimo thumb. Contrary motion.

III. (*a*) Chromatic scale with pianissimo thumb. Contrary motion.

(*b*) Chromatic Scale in octaves, major and minor thirds and major and minor sixths. Parallel motion.

IV. Double Thirds. Rhythmical Trill.

V. (*a*) Minor chromatic double thirds.

(*b*) Major chromatic double thirds.

VI. Diminished seventh arpeggio with pianissimo thumb.

VII. Diminished seventh arpeggi on all white keys with different accents.

Same, to be practiced elastic and light staccato.

VIII. (*a*) Velocity scale, A major: Right hand.

(*b*) Velocity scale, E♭ major : Left hand.

IX. Study in Dual Rhythm. Five finger and broken chord exercises, three notes in one hand to two and four notes in the other.

X. Scale of C with regular fingering, parallel motion, accented in quarters, eighths, sixteenths and thirty-seconds, for velocity and endurance.

XI. Major and minor scale in octaves, thirds and sixths accented in groups of 4's, 8's and 12's; also 3's, 6's and 9's.

XII. Broken chords to be practiced in quarters, eighths and sixteenths.

XIII. Octaves. Chromatic scale, parallel and contrary motion.

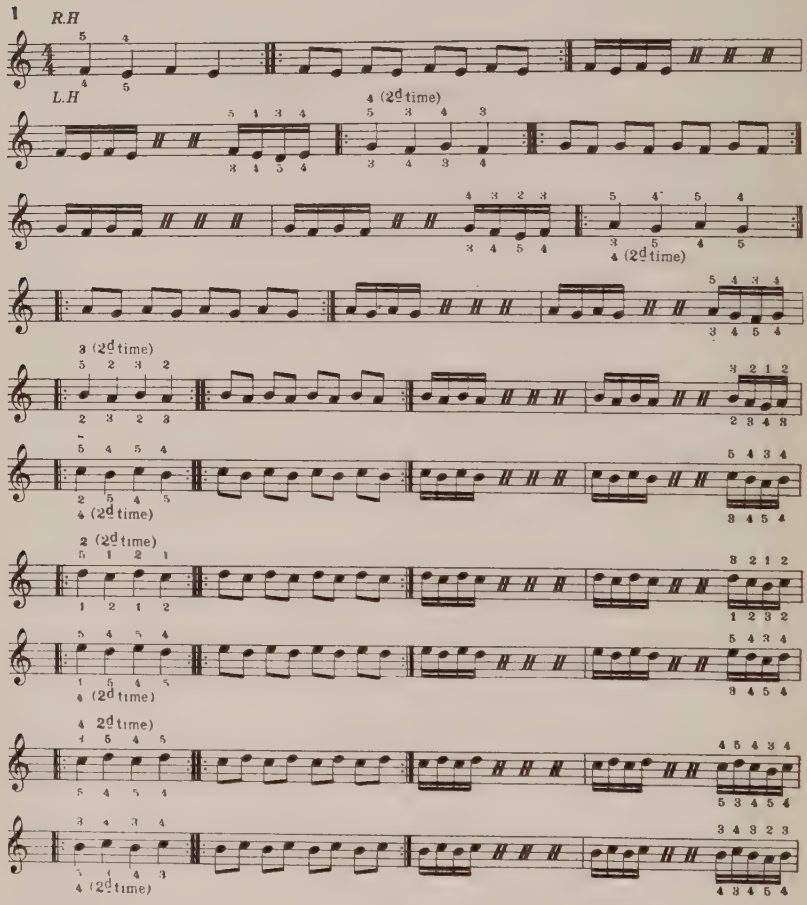
XIV. Octaves. Diminished sevenths accented, in quarters, eighths and sixteenths, on all the white keys.

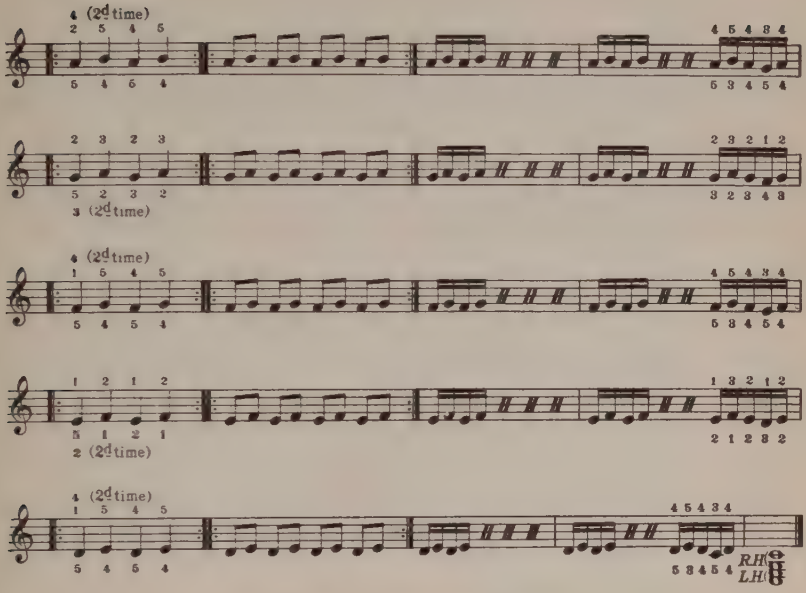
XV. Difficult passages from compositions being studied.

DAILY TECHNIC EXERCISES.

In order to concentrate the attention upon the physical development, memorize each exercise.

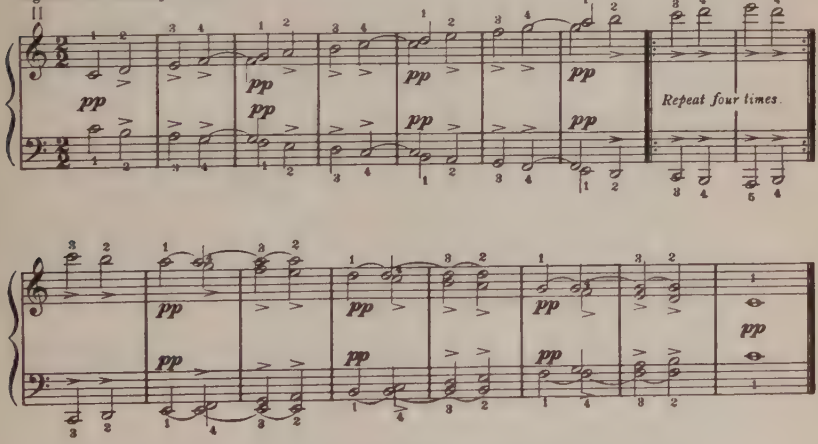
Practice the left hand an octave, or a tenth, below the right hand, with the hands separately, and together.





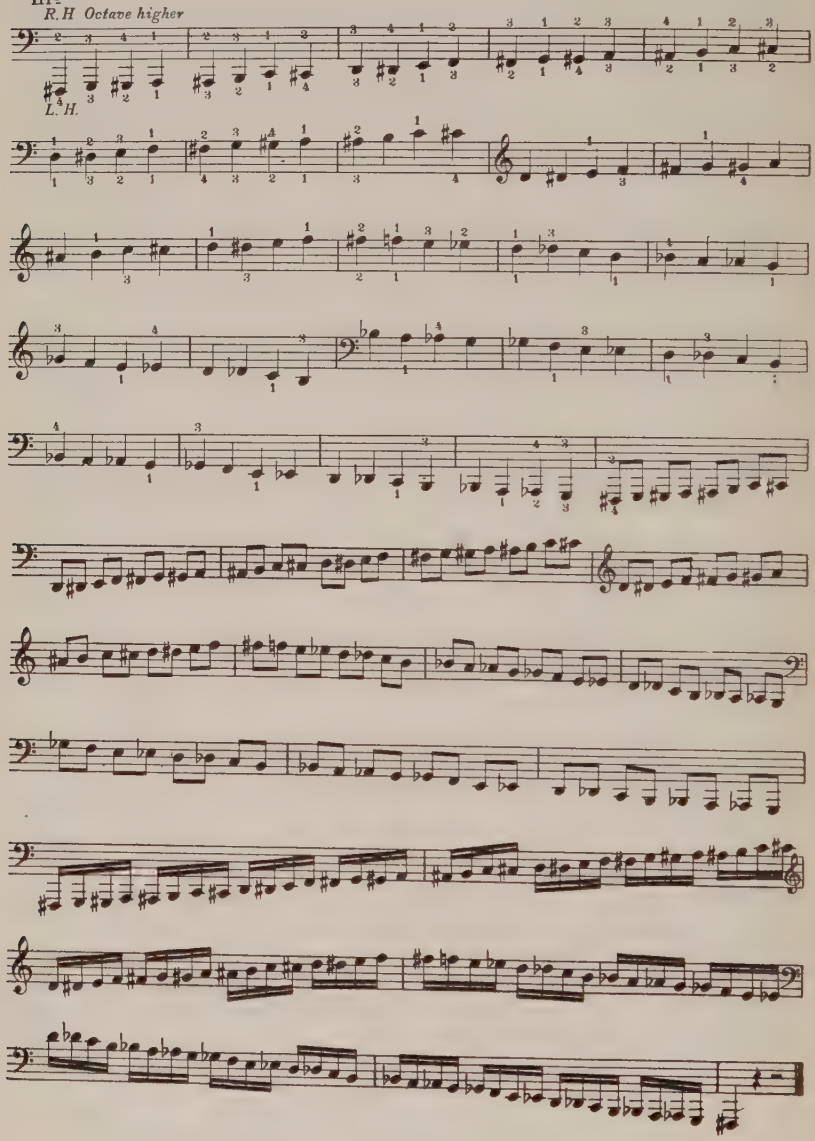
SCALE OF C—PIANISSIMO THUMB

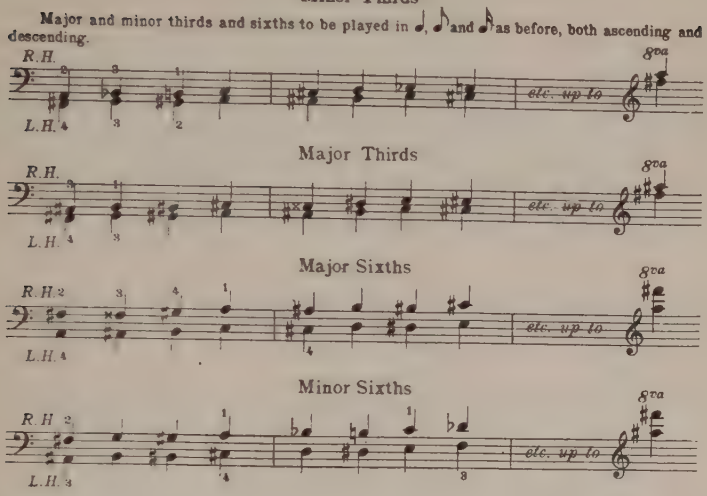
To be practised *legato*, with finger-melody-touch and relaxed thumb action; with hands separately, and together in contrary motion.



CHROMATIC SCALE.

Practice *legato*, with hands separately; also with hands together in parallel motion.

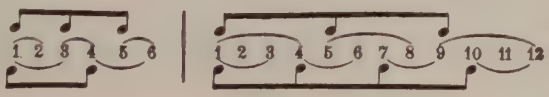




For Exercise IIIa see p. 46; for IV see pp. 57, 58 and 59; for V see p. 60; for VI, p. 50; for VII, pp. 52–56; and for VIII, p. 48.

Dual or Cross Rhythm.

For practicing two notes against three, and three against four, use the least common multiple of each, counting aloud in slow practice.



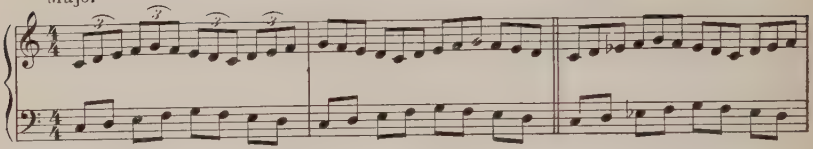
Gradually increase the tempo until playing as rapidly as it is possible to count. Then practice from accent to accent rhythmically, first hands separate, then together, while listening for equality.

IXa

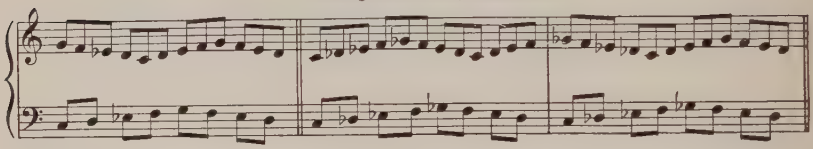
STUDY IN DUAL RHYTHMS

Major

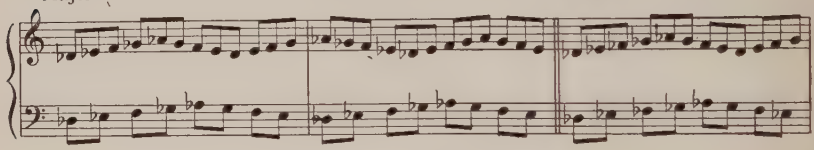
Minor

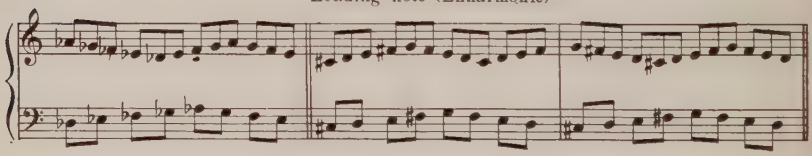


Leading-note of Key following



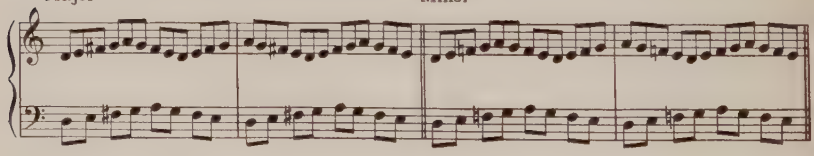
Major

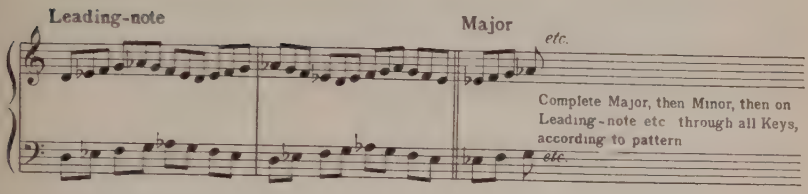
Minor

Leading-note (Enharmonic)

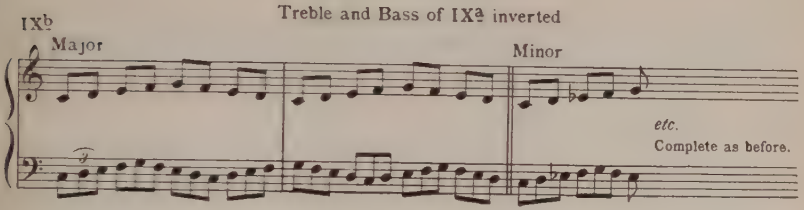
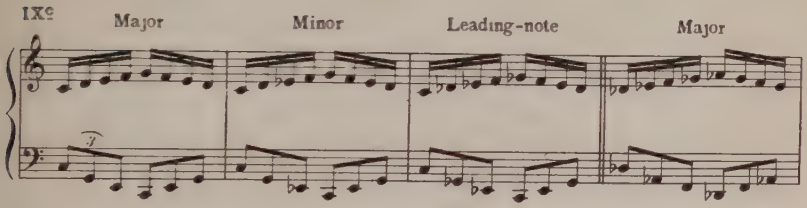


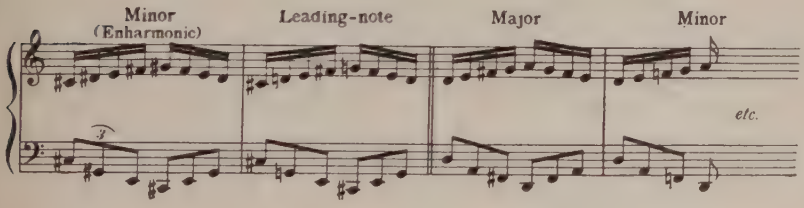
Major

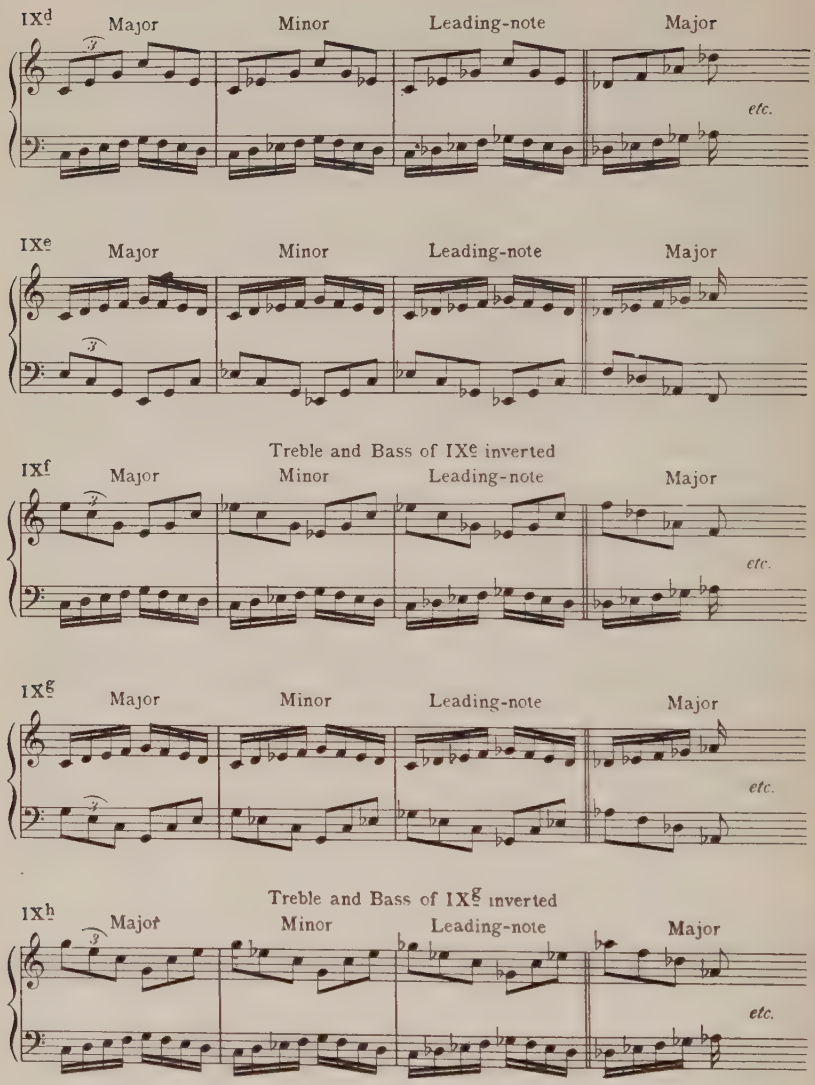
Minor



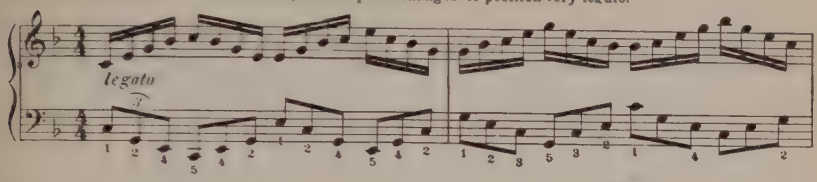

Leading-note
Major
etc.
Complete Major, then Minor, then on Leading-note etc through all Keys, according to pattern
etc.

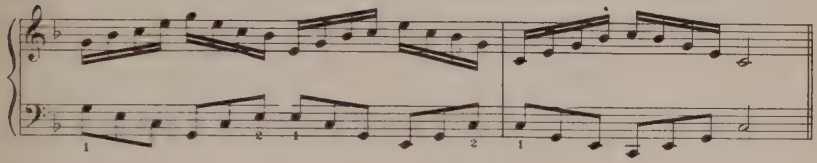

IXb
Treble and Bass of IXa inverted
Major
Minor
etc.
Complete as before.

IXc
Major
Minor
Leading-note
Major

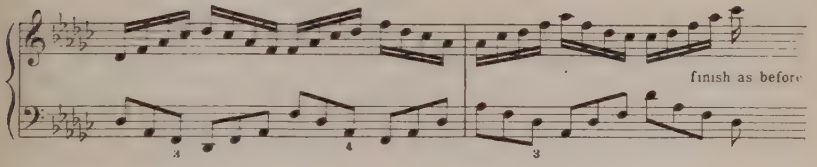

Minor
(Enharmonic)
Leading-note
Major
Minor
etc.

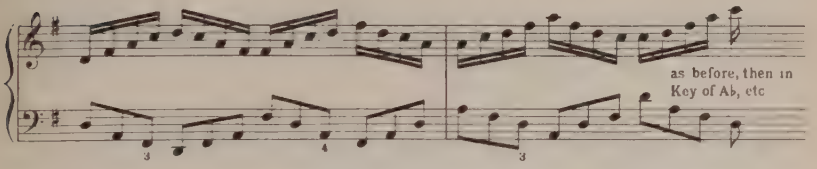

IXd
Major
Minor
Leading-note
Major
etc.
IXe
Major
Minor
Leading-note
Major
Treble and Bass of IXe inverted
IXf
Major
Minor
Leading-note
Major
etc.
IXg
Major
Minor
Leading-note
Major
etc.
Treble and Bass of IXg inverted
IXh
Major
Minor
Leading-note
Major
etc.

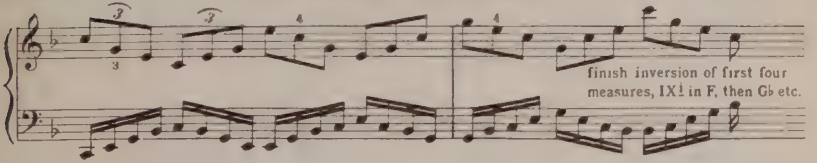
IX¹ Care must be taken to play the skips in changes of position very legato.



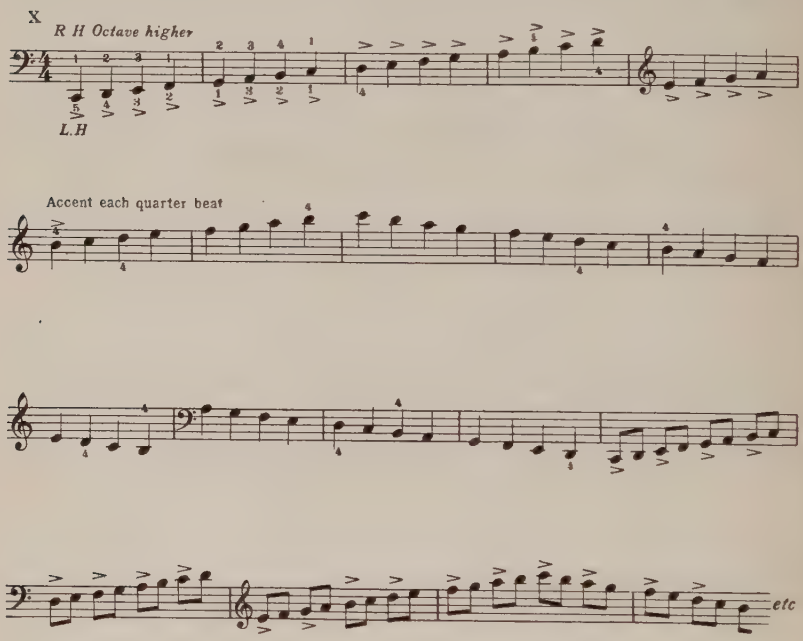


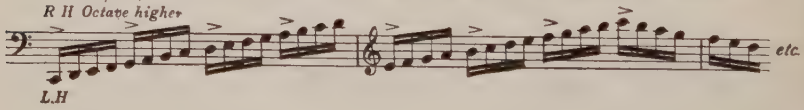




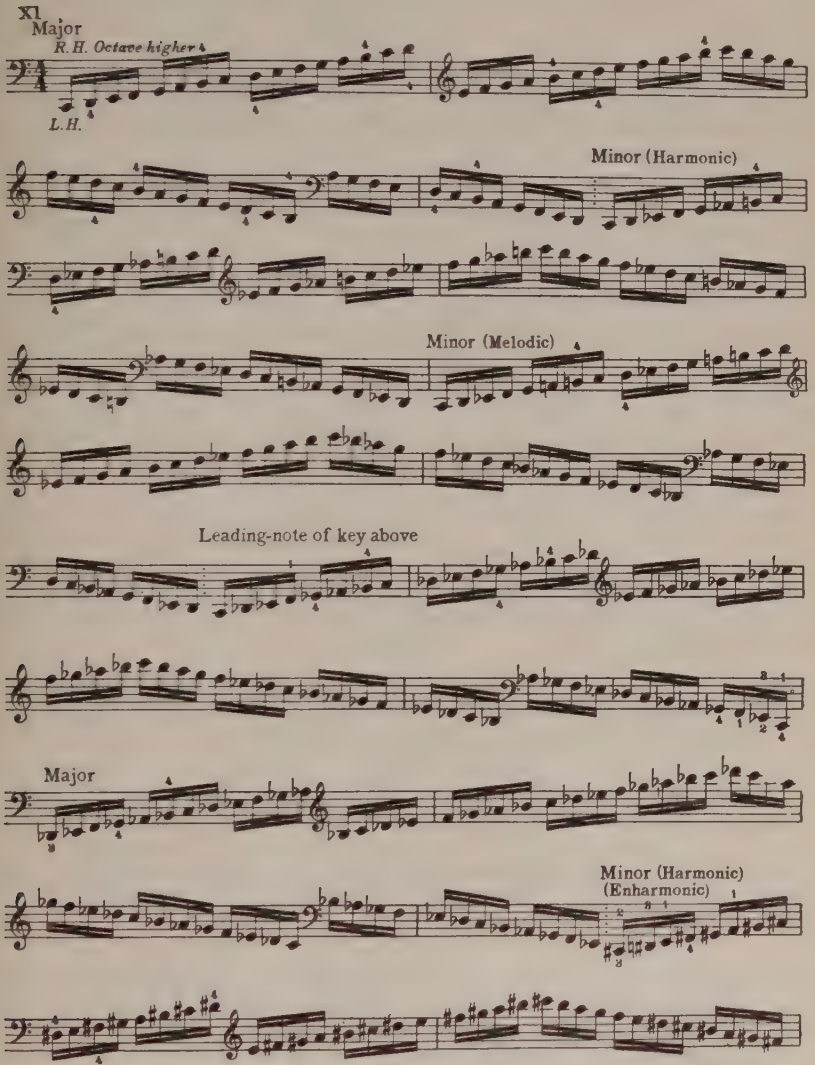
IX¹ Treble and Bass of IX¹ inverted

SCALE OF C.

For endurance, practice once in quarters, twice in eighths, four times in sixteenths and eight times in thirty-seconds. Practice with hands separately and also together.

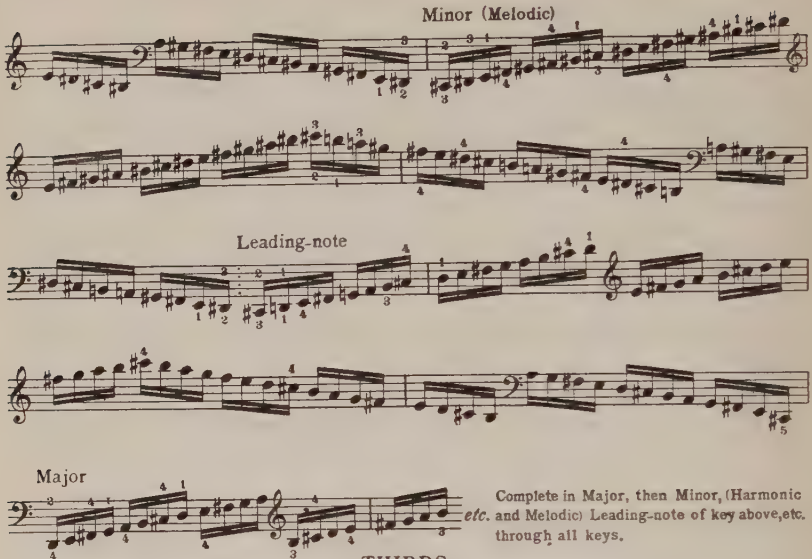


For velocity, practise in sections from one accent to the next Then combine two sections, four sections, etc.

For velocity, name the accents and play from one accent to the next.

*) MAJOR AND MINOR SCALES.



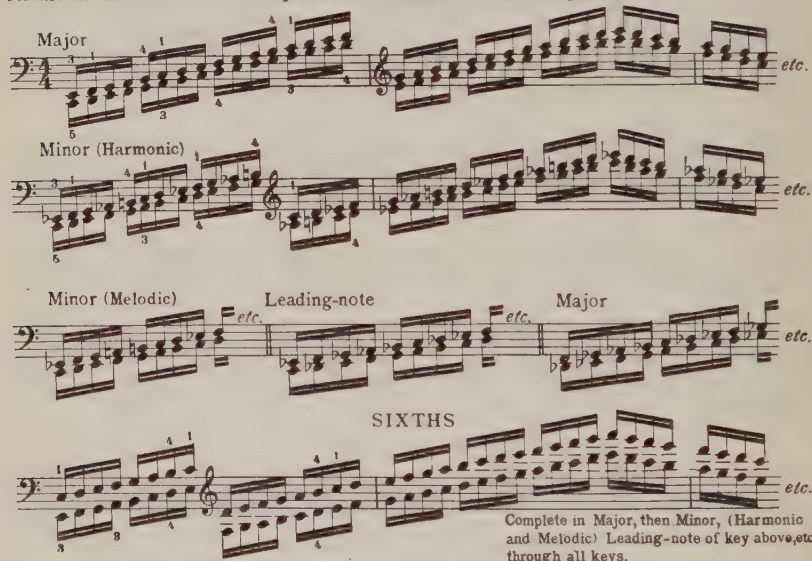
*) The above scales are to be practised with hands separately and together in groups of 4s, 8s, 12s; and also in 3s, 6s, and 9s.



Complete in Major, then Minor, (Harmonic and Melodic) Leading-note of key above, etc. through all keys.

THIRDS

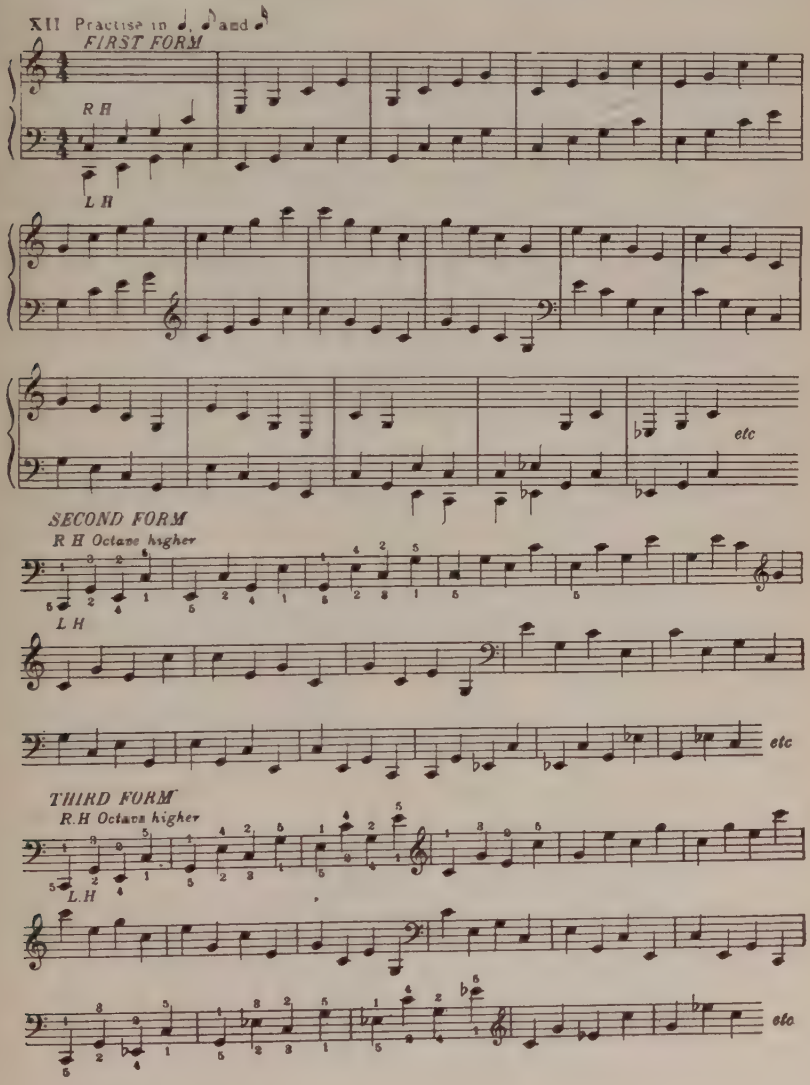
Practise the thirds and sixths in all major and minor scales as in the preceding exercise.

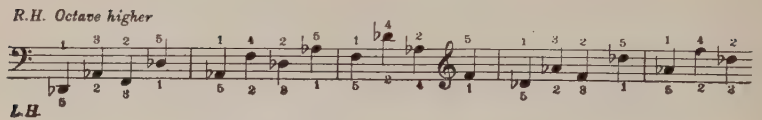


Complete in Major, then Minor, (Harmonic and Melodic) Leading-note of key above, etc through all keys.

BROKEN CHORDS.

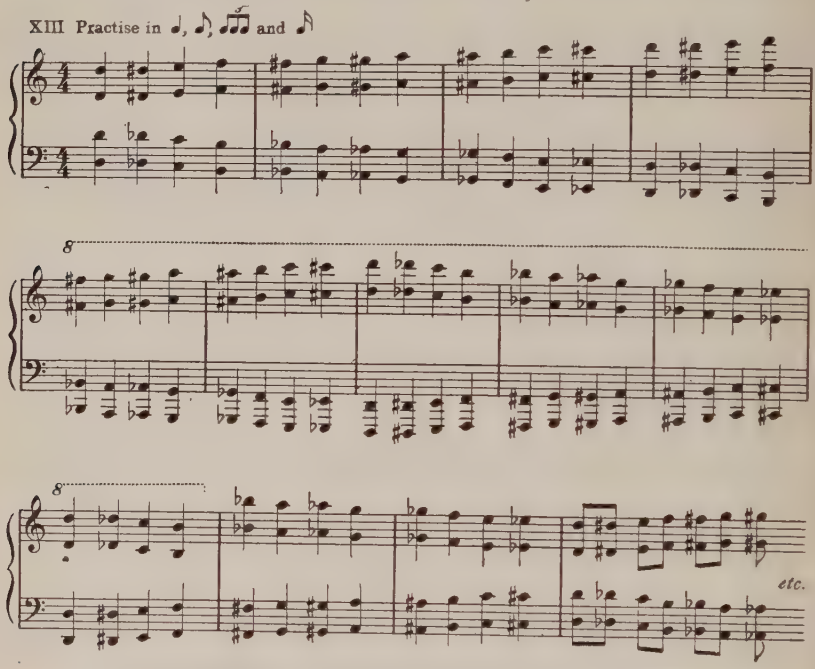
Practice on the Key-note of the Major and Minor scales, and on the Leading-note of the next scale above (chromatically).



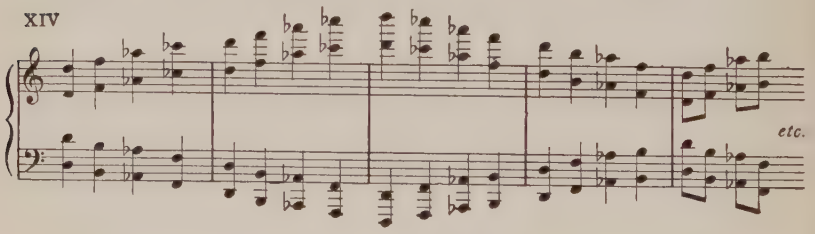


CHROMATIC SCALE IN OCTAVES.

Practice both from the elbow and from the wrist. Play on the ends of the black keys, and on the white keys at the ends of the black keys.



DIMINISHED SEVENTH CHORDS IN OCTAVES.

Practice in the same manner as XIII.

Special Exercises.

For chord practice in different positions, to accent inner melodic tones, place the fingers on the keys of a chord, and while holding all but one finger, raise that high and with as strong contraction of the finger flexor as possible, play that tone with melody touch many times while listening carefully. Again with the other fingers just touching their keys, and the one finger which is to be brought out above the other voices again raised high, drop the forearm and wrist and press with this one finger, striving for the same intense contraction while keeping absolute lightness in the others. Listen carefully for the desired singing tone and the subordination of the other tones.

Formal Practice.

Young pupils and all who are deficient must be trained in the harmonic basis of music, for which the study of transposition is most helpful. This must be always mental even when playing on the keyboard, and not dependent on the ear. Although this mental practice may be included in the daily technic, it is a part, not of the technic, but of the practice of forms.

The more time and earnest effort spent on this technic work, the faster naturally will the technic be developed, but after the forms are mastered the most important only can be retained when the time for practice is very limited, in which case a half hour is sufficient to cover the most necessary ground.

Passages from Repertoire.

In the daily technical practice should also be included the difficult passages of compositions studied, which have not come up to the general level of excellence of the rest of the composition. New compositions can replace these well studied ones, while the passages in question are transferred to the daily technic. When the passages are fully equal in tempo and surety to the rest of the

composition, it should be reviewed and played. It is not advisable to put passages into the daily technic which are not to be used as repertoire, as the time in such cases would be better spent upon the concentrated or greatest difficulties of the regular technical exercises.

Use of Études as a Means of Technical Development.

Only where pupils are negligent of technical practice and have to take their pills sugar coated should Études be resorted to for technical practice. Compositions should be selected which serve not only to develop the musical and artistic side, but also to supplement the technical at each stage of advancement.

First Scale Study.

For young pupils, who are just learning the scale forms, it should be needless to say that all scales should be written before playing, and until the finger and thumb action is properly established the scales may be practiced portamento with each finger in turn separately, and again with the correct fingering, still portamento. Not until the thumb is well under control should the legato scale be practiced.

Rules for Fingering.

The fingering is easily learned by the following rules:

In the sharp scales the right hand *fourth* finger comes *below* the keynote; the left hand fourth finger comes *above* the keynote. In the flat scales, the right hand fourth finger comes on B♭; the left hand fourth finger comes on the *fourth* note or subdominant of the scale. Exceptions; In the scales where the *three consecutive black keys* occur, the right hand fourth finger comes on the upper, the left hand fourth finger comes on the lower of the group. This causes the left hand to commence more naturally with the fourth finger in the scale of B. In the scale of F the left hand is fingered according to the rule for the sharp scales. In the minor scales, the

fingering is according to the rules for the parallel major scales. Exceptions; In F♯, and C♯ minor, the right hand fourth finger comes *above* the key-note; the left hand fourth finger comes on G♭ in the scales of E♭ and B♭ minor.

A modern scale fingering which is very valuable, is in always using the fourth finger of the left hand on the black key following the thumb on a white key in ascending, or followed by the thumb in descending. This gives the possibility of the utmost velocity to the left hand as well as to the right.

This will affect the scales of G, D and A where the fourth finger will fall on F sharp, and the scale of F where the fourth finger will fall on B flat. In all the other scales, the fingering is according to the preceding rules. The right hand follows this rule of using the fourth finger always on a black key with the thumb immediately following on a white key, so there is no change from the rules as first given.

XV. HOW TO PRACTICE.

Principles of Practice.

It is most important to know how to practice in order to obtain the best results, not only from the technical standpoint, but also in the study of interpretation, memorizing, etc.

There are five great principles to keep constantly in mind.

Concentration.

First: **Always think before playing.**

Concentration of time and effort involves concentration of mental as well as muscular effort. If the mind is inclined to wander, the best remedy is to practice a passage or phrase to play three times consecutively without making a mistake. To be able to do this is far better than to play a passage indifferently ten, twenty, or fifty times, or even the same number of times without definite aim. Minds lacking in concentration will frequently have to practice the same passage from fifteen minutes to a half an hour, before obtaining the desired results, as the mind is apt to wander at the very last and the work has then to be repeated. The merit of this method of concentration is the habit of practicing a passage three consecutive times correctly. More than this is likely to over-fatigue mentally, but in a difficult passage this should be done daily, or may be returned to after a period of relaxation during which time the mind has been refreshed by other practice or by a complete change of thought. Not until the passage can be easily played from memory at the desired tempo should this manner of working be abandoned.

Accuracy.

Second: **Never permit a mistake to be made.** This involves the third great principle:

Slow Practice.

Third: **Practice slowly.**

Practice so slowly that each muscular action may be thought out clearly before being made, until correct muscular habits have been formed; so slowly that every note may be thought clearly before being played, *without hesitation*; so slowly that the most difficult measure may be played in the *same tempo* as the others; and lastly, slowly enough to play each note as *loud as possible with correct muscular effort. This involves a good tone.* In this manner, endurance as well as surety is developed in far less time than by ordinary practice. The amount of endurance depends upon the amount of effort in the contraction of the muscles used.

Economy of Time and Effort.

Fourth: **Practice as fast as possible.**

This seemingly contradictory statement is simple enough. Always practice as fast as is possible to play *every note correctly* with *proper muscular effort, pure tone and exact rhythm.* This requires the closest mental concentration and allows no time to be wasted. It also requires muscular concentration compelling, by the fortissimo practice, each muscle to make its greatest contraction in the least possible time. Never, however, in this practice, allow the speed to be increased to a point faster than is possible to play every note as loudly as possible, or where, in the effort to obtain endurance, stiffness or faulty muscular effort ensues. *Thus we see that the third and fourth principles are one and the same.*

Relative Conditions. — This fourth principle depends on two conditions, the degree of advancement of the student, and also the degree of advancement of the composition being studied. What would be slow practice for an advanced pupil would be fast or impossible for one less advanced. What would be slow practice after weeks of study of a composition would be impossibly fast in its first stages. But it is a mistake to think that slow practice means

always just a certain number of notes a minute, the fewer the better. This principle needs much more caution than the third, though both should have a word. In very slow practice there is danger of overexerting the muscles in the effort to require the utmost from them. After a period of several weeks' rest, or in first beginning such practice, the muscles should not be exerted too vigorously. It is wiser to commence gradually to avoid soreness, lameness and possible cramping. But the vast majority of pupils need warning more particularly in the fourth principle. Most pupils are inclined to practice too fast and too carelessly, and too great stress cannot be laid on the conditions underlying this practicing as fast as possible; viz.: *that it shall be only as fast as is possible to play correctly in everything, but never faster.*

Endurance.

Fifth: **Practice for as much endurance as possible.**

This fifth great principle of concentration has been called fortissimo practice, but is a purely relative condition dependent upon the individual pupil. In order to concentrate muscular effort and to develop the greatest possible endurance in the least possible time, this practice for endurance occurs in all slow practice, with few exceptions. Together with this fortissimo practice goes that of accent, which should be used after the first stages of practice of a composition. The practice for endurance must never be forced beyond the point of correct muscular conditions.

Accent.

Accents are landmarks. In rapid playing it is impossible to think each note separately. The notes must be thought in groups marked by accents. In slow practice this should be in groups of 3's or 4's; in velocity practice, or for fluency, in larger groups of 6's, 9's, 8's or 12's. The tendency, when accent is used in slow practice, is to relax the effort in the other fingers, making the

notes between accents comparatively soft. The benefits of greatest possible contraction, or practice for endurance and equality, are thereby lost. The result is, that when a long, brilliant passage occurs, which requires both speed and broad tone with a tremendous climax, the muscles are not equal to the strain. They give out, or other muscles are impressed into the service, causing stiffness.

Properly, slow practice with accent, is to play every note fortissimo, that is, *as loud as possible and the accented notes still louder.* This is not merely figuratively speaking. It is possible to make a special effort, one note in every three or four, which would be impossible for *every* note. This special effort comes from the upper arm, while the fortissimo stroke for intervening tones is produced by the finger flexors. Careful attention must be given to tone quality, which must be always beautiful and singing, even in the heavy practice.

Velocity.

After a considerable amount of surety is obtained, the first practice for velocity may be commenced. This is done by relaxing between accents, endeavoring to keep the tones equally clear but light. At first the accent should be in groups of 2's or 3's, later in groups of 4's or 6's, and still later, in the measure rhythms. Some time must be given, in compositions requiring speed and delicacy, to absolutely relaxed, or pianissimo practice, but the greater amount of time should always be spent from the beginning to the end on *slow practice.* Great benefit will be obtained by practicing with accent for equality and velocity. Of great importance is it to know definitely every accent and be able to recite them if necessary.

Passages from Repertoire.

After a composition is ready for public performance, surety may be retained in the difficult passages by practice for surety and endurance once or twice a day, but playing the composition as a

whole as repertoire every few days. The special practice for relaxation and lightness may then be dispensed with, if properly prepared.

All pianissimo compositions or passages should be practiced *fortissimo* for surety and evenness of tone, and also with varying degrees of weight and lightness, the relaxed or pianissimo practice being valuable especially for hand condition in playing.

Change of Work.

In practicing, while remembering that change of work means mental rest, it is well to consider that this may also be applied to change of work in the practice itself, as well as the change from practice to the study of other subjects, such as Harmony, Composition, a foreign language, singing, or even some book worth reading.

It may be laid down as a safe, general rule that the practice at the piano should not exceed more than an hour at a time, with periods of from half an hour to an hour, spent in some other form of work or outdoor exercise. The brain is then refreshed when the practice is recommenced. Advanced students may be able judiciously and intelligently to increase the practice periods, but never to the extent of mental and physical fatigue.

Some pupils object that it is impossible to get thoroughly into practice in less than half an hour, and that they thus lose too much time by these frequent periods of rest, preferring to spend not less than three hours at the piano, when they get started. This proves that the habit of concentration is not properly formed. There should not be one minute of time wasted, to say nothing of half an hour.

Bishop Spaulding has most aptly said, "Careless work is dishonest, but waste of time is sheer idiocy."

Change of work, as applied to the practice itself, is dependent somewhat upon the amount of time devoted to practice. But it

may be said, in general, that from one-third to one-fourth of the time may be spent on the Daily Technic, which is best done at the beginning of the day's work, as being less fascinating to the musical pupil. The temptation to spend more than the allotted time on the study of the musical compositions often might otherwise crowd the technic off until it is partially or utterly neglected. Also as both brain and muscles are fresher at the beginning of the day's work, more intense effort will be thrown into the technic at that time than later in the day, with corresponding results, while the greater responsiveness of the muscles is plainly felt in the other work.

The change from technical practice should be first to some composition purely musical in character, which is being practiced for interpretation, rather than for technical qualities. Next, a composition predominating technically and so alternating through the day. The technic of the various compositions should be selected so as to give some practice supplementary to each division of the daily technic and especially that most needed by the individual pupil.

It is well to give new compositions an early place in the day's schedule, as they require, not greater concentration, but greater demand on the power of concentration. In this scheme no special time has been set aside for memorizing, as in proper practice memorizing goes on constantly.

Sight Reading and Repertoire Practice.

It should be made a rule, to read at least one piece of entirely new music every day, and to play at least one or two repertoire pieces also, after the regular day's practice is ended. The daily practice should never be so long continued that this becomes impossible from overtaxed physical and mental powers. When possible, ensemble work, best in duet form or in accompanying other instruments, should be the sight reading of the day. Where this is impossible, solo reading must be done, as all rapid progress is dependent equally upon solid technic and quick perception.

XVI. THE METRONOME.

Its Value.

It is a mistaken idea that the Metronome is injurious to artistic and musical work. If the principles of interpretation are intelligently understood and applied, there is no danger of losing freshness of inspiration, while there is an immense amount of benefit to be gained on the side of velocity or quickness of thought as well as accuracy by the correct use of this little instrument. Many pupils who do most careful, intelligent work and yet who seem utterly devoid of all idea of velocity, unable to think faster than *andante*, find that, with a half hour's work with the metronome, they are capable of playing *allegro*. On the other hand, those who are apt to allow their fingers to run away, gain surety and poise by its judicious use. Pupils who are inaccurate and deficient in rhythmical feeling will also make far more rapid progress by this means than otherwise.

Its Use.

The metronome should always be set with the beat to the *smallest* note at first, at not merely an easy tempo, but one which seems unnecessarily slow. The practice should then be done with the utmost precision, each note played for surety and endurance until perfectly accurate. Then by degrees the metronome tempo may be increased, but still with one beat to the smallest note until either the speed limit of the pupil or of the metronome is reached.

Speed Limit of the Student.

If it be the limit of the student, the metronome should be set back to a thoroughly easy tempo, though not so slow as at first, and again increased by degrees as fast as the pupil is able to play

correctly. At first it may be difficult to get beyond the first speed limit without stumbling, but by repeated returns to the slow practice and the gradual increase each time of the tempo, a gain of several points will finally be reached. Frequently also a few attempts to play at the difficult tempo reached will enable the pupil to play at that tempo correctly, but if not, the return to a sufficiently slow tempo must not be delayed. With daily practice in this manner this tempo limit will steadily become higher.

Speed Limit of the Metronome.

When the speed limit of the metronome is reached, or when the ultimate speed possible to attain with one note to each beat has been reached, the metronome should be set back again to an extremely slow tempo and two notes (or three, if triplets) played to each beat, practicing as before. Later, in the same manner, four or six notes may be practiced to each beat. In all this work, the finger action must be kept perfect, and each note should be practiced for surety and endurance as before.

The faster the practice, the shorter necessarily will be the stroke. There is a speed limit with every hand beyond which it is impossible to play fortissimo. The rule for practicing every note loud and not merely the accented note should be carefully followed, in the slower tempo, as it gives a surety which no amount of rhythmical work can possibly do.

XVII. MEMORIZING.

Basic Principles.

The greatest aid to concentration and the basic principle of all memorizing is the analysis and mental grouping of all sequences of fundamental and harmonic progressions, rhythms and fingerings. This should be done from the beginning of practice, and much time and strength will be saved if done at first without the piano, phrase by phrase, then at the piano. If, however, pupils have been taught to do careful, methodical and concentrated work, let all faculties, eyes, ears and fingers, be used as soon as possible. Such pupils will always think first, then play. Memorizing, in this way, goes hand in hand, from the first study of a composition, with its technical and musical study, and is not left to be a mere routine result of long continued repetitions. At the end of the first week or two the results do not seem as great as in practice with the notes, but afterwards the progress is much more rapid. Concentration is, in this manner, brought to its highest degree of perfection and efficiency, and practice becomes intelligent.

Playing from the Notes.

It is not necessary, however, to memorize everything so thoroughly that it can be played without any reference to the notes, with complete freedom of interpretation. This should be required only of compositions to be used as repertoire, as many other compositions must be studied for various reasons, and it would consume much time unnecessarily, to bring all up to the point of excellence mentioned. These compositions, however, should in the first stages be studied in exactly the same manner as repertoire pieces, and

after being well learned, may then be played from notes. If this reading from the notes be delayed too long, until the habit of playing from memory becomes fixed, it will be found awkward, but if, each day, the composition is played once with the notes, it will remain natural for the eye to follow the score. This memorizing is not a waste of time, but is simply a result of proper analysis and concentration in the early stages of the study of any composition, without following it to the point of finished work for public performance, while using the notes as a means of refreshing the memory at the lesson gives greater freedom.

Freedom of Interpretation.

No composition is played with the abandon of complete mastery until *completely memorized* and played with entire freedom from any prompting score. Memorizing is thus considered one of the indispensable elements of modern interpretation, not only in a pianist but also in a singer, violinist or other musician, as well as in an actor, that another's thoughts should be made one's own, capable of being conceived, interpreted and delivered intelligently in the spirit of the composer, without assistance from notes or other mental aid.

The amateur who wishes to do artistic work should consider this as essential as does the concert pianist.

NOTE. — For a systematic study of memorizing, "A Guide to Memorizing Music," by A. J. Goodrich, is strongly recommended. Clear, concise, and comprehensive, it should be in the hands of every earnest student and young teacher.

XVIII. PUBLIC PLAYING.

There are many fads and sensational methods for developing self-control and poise in public performance. As in many other directions in this world of ours, a very considerable grain of truth is often so overrun with weeds that the real good is completely lost.

Nervousness.

There are several reasons for nervousness or stage fright, any one of which is sufficient to cause a poor performance of what seemed to be thoroughly mastered compositions.

Among them are self-consciousness, caused by either vanity, excessive sensitiveness or an unselfish desire to do credit to one's teacher; lack of proper study and preparation, relying on finger and ear memory, without having given a sufficient amount of time to intelligent analytical study, so that under tension the mind becomes a blank, the ear ceases to hear consecutively, and the fingers by an occasional slip lose their accustomed combinations and are thrown, as it were, out of their grooves.

Deep Breathing.

Either of these causes will result in quickened heart action and breathing, and either in complete relaxation of the muscles or else in a contraction of all muscles even to those of the heart and lungs, almost stopping breathing, paralyzing effort, and making it next to impossible to move the fingers.

Absolute relaxation cannot in itself obtain satisfactory results in piano playing, any more than in the business affairs of life. It is voluntary relaxation, *where needed*, combined with *conscious control*, which brings the highest results. Slow, deep, regular breathing, which facilitates conscious control cannot be too earnestly advo-

cated, while every pianist knows, that in a heavy, difficult passage it is as necessary for him as for a singer to take a long, deep breath, filling the lungs to the utmost.

Mental Attitude.

Again, unselfishness, self-effacement, self-forgetfulness, an enthusiastic desire to make the compositions played as intensely enjoyed and appreciated in all their beauty by the listener, as by the interpreter, instead of the vain desire to make a sensational display of technical attainments; and last, but not least, the consciousness of work well prepared, no task, however difficult, having been slighted, in order to attain the best results; all of these things will give a sense of security.

Informal Playing.

But with all this, no one need expect to be thoroughly at ease and confident of success without *practice in public performance.* To step from the retirement of one's own home to a concert stage before a large audience is a new impression, and new impressions are distracting, disturbing the power of concentration. Every opportunity should be seized to play the prepared repertoire in part and as a whole, for both those who are especially interested and sympathetic, and also for those who are not; for both few and many people. Weak spots are thus discovered. Concentration under new and ever changing conditions is gained, and through increasing success comes increased pleasure in public performance. In Berlin, that center of musical life, where all artists, great or small, desire especial success, it is not an uncommon custom for an artist about to give a recital or series of recitals, to visit his colleagues and play his programs to each one in turn, and not until the round is satisfactorily made, does he feel ready for his concerts. Should amateurs or young artists hope to do satisfactory work with less careful preparation?

Fear.

All thought of fear or dread must at all times be completely eliminated. Such thoughts should not be tolerated for an instant. The inane though well meant condolences of friends, "Do you feel very nervous?" should be instantly silenced. The coward has never been a success in any age or epoch. It is he who goes courageously forward, determined in any event to do his best, and allows Providence to take care of the rest, who makes, if not complete success, yet, nevertheless, success. No one need feel called upon to do more than the best of which he is capable at the time, if his preparation has been honest and earnest. A slip now and then comes to even the greatest artist. Only a mechanical piano player is letter perfect.

Self-forgetfulness.

Let each one work for Truth and Beauty, forgetting selfish interests, avoiding indifference, which in its way is as deadly as over-anxiety. Cultivate a kind and helpful spirit, with charity for all, and as the spirit of unkind criticism dies out of the soul, the fear of it, and the dread of public performance will also die a natural and peaceful death.

XIX. INTERPRETATION.

Form.

Music is closely allied to poetry in its structure. The simplest form of music, the period, corresponds to the simplest form of poetry, the stanza. As in poetry, a stanza consists of four lines of a certain length and meter, answering or rhyming with each other, so in music, a stanza, called a *period*, consists of four lines called *phrases*, usually of regular length and rhythm, sometimes the first and second, third and fourth, answering each other, sometimes the alternate phrases, or the first and last. In poetry there are different meters, Iambic, Dactylic, Spondaic; in music, different rhythms, $\frac{2}{4}$, $\frac{3}{4}$, etc. As in poetry, the phrases may be long, and may have no answering rhyme or finished endings.

The one stanza or period form is called the *Unitary Form*, but frequently a connecting clause, not complete in itself, leads on, or rather back to, the repetition of the first stanza. The end of a stanza is a *point of rest*, of completed thought marked by a period. This feeling of rest in music is obtained by means of a full cadence, on an accented beat. As an unaccented beat is a point of motion, so is a primary accent a point of more complete rest than a secondary accent, and is therefore a more satisfactory ending. Some writers have called these strong or weak, masculine or feminine endings, according to whether they fall on primary or secondary accents.

Phrasing.

Phrases are partially expressed thoughts incomplete in themselves, and yet sufficiently complete to give opportunity for breathing, and finished by a half cadence or sometimes a deceptive cadence,

but as in reading or singing, also in instrumental music, phrases may be so short as to render breathing between each unnecessary. The effect of breathing is a more or less prolonged silence, and is produced in piano playing by lifting the hand with the last half of the portamento touch. This is the vanishing point of a phrase. Unless there is a rest, this break is scarcely perceptible, only long enough to give the feeling of partial rest or quiet the more readily felt by playing the last note of the phrase softer, as the slurred last syllable of a line of poetry, "Thou'rt like unto a flower" —"O hush thee, my baby." Indeed so absolute is this rule of making the last note of a phrase softer, that composers rarely give any dynamic sign for its indication, while, on the other hand, the exceptional places where especial stress is desired are marked by special accents. The accenting of last notes of phrases because on rhythmical beats is as unmusical and inartistic as to sing:

Thou'rt | like un | to a | flow- | er, So | fair and | pure and | bright.
> > > > > > >

In music, the small, simple or large and complex forms may, in a general way, be identified with the sonnet, the lyric, dramatic or epic poems. Only by the study of Musical Form, of the structure of compositions, of phrases, periods, unimportant or subordinate clauses and episodes, of simple and complex forms, and points of climax, is it possible to have an intelligent conception of Music and the art of phrasing and interpretation.

Rules for Phrasing.

A few rules for phrasing may be suggested:

1. **The first note of a phrase** should be accented, whether on a rhythmical beat or not.

2. The first note of a phrase should be taken with the first half of the portamento touch unless legato with what precedes it, in which case the accent is given by the finger instead of the arm.

3. **The last note of a phrase** should not only be unaccented whether on a rhythmical beat or not, but should also be the softer

note of the phrase, unless the composer indicates by a special accent his desire to have it otherwise played.

4. **The last note** is left with the last half of the portamento touch unless legato with the following phrases; that is, *unless without a breathing point.*

These rules apply also to the phrasing of motives whether they are detached or legato.

A slur, ending over the last note of a group or of a measure, is usually a sign of legato, but not of phrasing. The last note of the group or measure is not to be played softer, but the arm may be lifted slightly portamento in order to drop with arm weight on the first note under the next slur.

Dynamics.

Most composers have indicated carefully the desired use of dynamics and of tempi, and have given all possible directions for the correct interpretation of their compositions. Beethoven especially was accurate. Where he wrote *pp* he desired pianissimo until the next sign and then if *ff* followed, the change was to be sudden and *not* by a gradual crescendo. Whenever a crescendo or diminuendo was desired he was careful to use the necessary signs. He showed throughout his work by his often violent changes of tone coloring, his intense emotional nature, with its constant conflicts and impatience of all restraint. The many pianists who make gentle undulatory crescendi and diminuendi in his compositions, crescendi to the high notes, and diminuendi to the low ones, without directions for so doing, and the editions making use of the same liberties, are inartistic and unauthenticated. Chopin was gentle, polished, delicate in his nuances, as in his own temperament. Though capable of intense emotional feeling it was always accompanied by the refinement of an exceptionally sensitive nature. To him would have been as impossible the abrupt changes of Beethoven, as would to Beethoven have been equally impossible the dreamy, fanciful improvisations of Chopin.

Influences.

In studying interpretation, it is necessary to study the composers' lives, the influences of the period and of the limitations of their instruments upon their style. Also a study of the different *forms* and *styles* of composition is essential. A Nocturne, a Mazurka, a Sonata, a Fugue, a Toccata, a Ballade, is each a different form and has a distinct emotional content. A Scarlatti Sonata differs, however, from a Beethoven Sonata and the latter from a Chopin Sonata, as influenced by the peculiarities of the times and the individual temperaments of the various composers.

Fundamental Principles.

While there are certain fundamental principles underlying all musical interpretation, yet the great number of various influences make the study of Interpretation exceedingly complex. A few general principles may, however, be mentioned.

Perspectives.

Crescendi and diminuendi, accelerandi and ritardandi are the perspectives of music and like perspective must be gradual, not irregular and spasmodic. A crescendo is a steadily increasing volume of sound, each tone somewhat louder than the last. The piano and other instruments of percussion are incapable of a perfect crescendo. Wind instruments, including the voice, and stringed instruments played with the bow, are capable of an absolute crescendo, where each tone is increased in volume to the point where the next commences, so that the tones blend perfectly, and the sign is accurate.

In instruments of percussion, the overtones increase slightly the original volume, but aside from this, it is not only impossible to make a crescendo in any one tone, but also in sustained playing each tone diminishes no matter how slightly before the next one

is played. Each tone commences louder than the preceding, requiring, of course, more and more muscular contraction. In diminuendo the reverse is true.

Ritardandi and accelerandi similarly are a gradual increase or decrease in tone duration, each note being somewhat longer than the one immediately preceding it in ritardando and shorter in accelerando.

Ritardando and Accelerando.

Utterly false and irregular is the spasmodic ritardando or accelerando, consisting of notes of uneven length, sometimes shorter, sometimes unreasonably longer than the preceding note.

In melody playing, each period should be finished with a well proportioned ritardando suited to the importance of the period's place in the composition, and also to the emotional content. A ritardando at the end of a *phrase* or *clause* depends entirely upon the *period* in which it belongs. A period closing with a strongly marked ritardando would be unnatural and unprepared without ritardandi of less importance at the end of its phrases. On the other hand, a period ending with a slight ritardando would be overbalanced by heavy ritardandi ending its phrases. In such cases, the ritardando would be scarcely perceptible, and in rapid work the tempo would generally be uninterrupted.

A ritardando leads to a point of rest. The more important this point may be, the stronger is the ritardando. An accelerando leads to a point of motion from a point of rest, and it depends entirely upon the emotional content of a composition as to the application or use of these mediums for expression.

After a ritardando must come the *gradual return* to tempo or the accelerando. A sudden return to the tempo following a ritardando is both unpleasant and unnatural. Abrupt changes are as unnatural in music as in nature. They are the strong unexpected accents, but not the rules. *A Tempo* is often wrongly interpreted as meaning a sudden return of the original tempo. "A" means literally "to" or "to the" and therefore should usually be interpreted as *a return to the tempo*, and not *in tempo*.

Accelerandi are also used in passages requiring more emotional intensity, where the content seems to necessitate the continual pushing onward, while a ritardando often suggests exhaustion after protracted and intense effort.

High Lights.

Ritardandi also prepare for the *high lights* of music. High lights are focusing points where emotional intensity culminates, the center of interest to which all else is subordinate. As it is impossible for a focusing point to be a point of motion, therefore a high light must be a *point of repose* and can only occur when the *highest note of a phrase occurs on an important beat*. Accented beats are points of repose; unaccented beats, points of motion. A high light is as a mountain peak which may be of greater or less importance in its range. There may be many high lights of varying importance in a composition, but always there will be one which is greatest, the intense climax of which dwarfs all the others. Compositions without a high light have extreme simplicity in character, but also the monotony of a level plain. Masses of coloring may transform and beautify it but it can never have the variety and beauty of the valleys with their surrounding hills and the grandeur of their mountain tops.

Unemotional playing ignores the high lights, sentimental playing exaggerates them; but where they are well balanced and finely conceived, the result is emotional playing of a depth of tenderness and

beauty, which no merely fine tone coloring, shading or perspective coupled with the most perfect technic can give.

To sum up: *A high light is the highest melody note of a phrase, when it occurs on an important beat*, and is thrown into relief according to its importance by delaying upon it to a greater or less extent. If of great emotional intensity it is preceded by an accelerando, but in all cases, in order that the balance of rhythm and tempo may not be disturbed, the delay is prepared for by a slight ritardando and led away from by an accelerando. This necessitates the finest balance of accompaniment which must meet these delays always evenly and with exquisite precision, being always with the melody, never just before or after. The practice of always making a crescendo to and a diminuendo from, a high light is as before suggested, inartistic and monotonous. Oftentimes the most delightful effects are obtained by making a high light of the finest pianissimo possible, even as an artistic singer of the highest rank will take a high note oftentimes with dainty pianissimo, where a less refined singer would endeavor to produce her climax by exactly the opposite means. These effects can only be determined by the character of the composition, its general contour and coloring and the character of its subordinate climaxes.

In all that goes to make a complete musical, intelligent and artistic interpretation through fine phrasing, exquisite tone production and tone coloring, through emotional high lights and forceful tempi, a masterly technic is necessary. The piano must be played in such manner that all difficulties appear as mere bagatelles, not as obstacles to be wrestled with. The means must be subordinated and concealed in the beauty of the end attained, proving the musical and artistic value of a scientific technic.

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